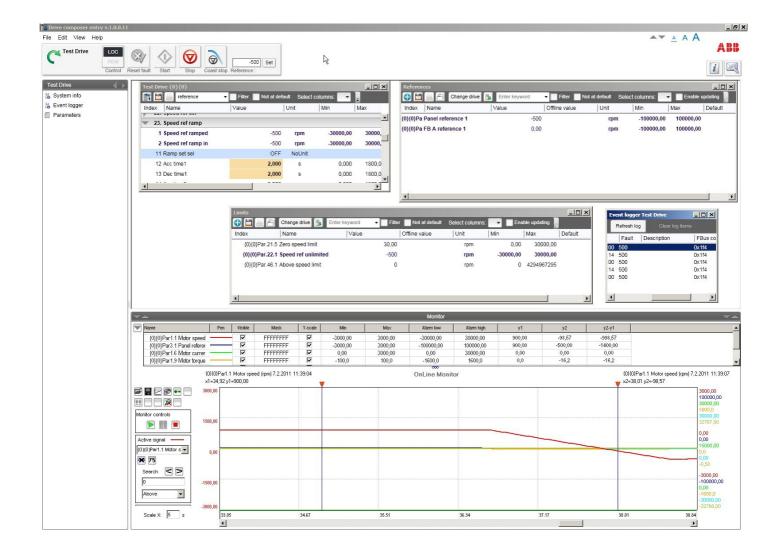
User's manual

Start-up and maintenance PC tool Drive composer



List of related manuals

Drive firmware manuals and guides	Code (English)
ACS880 primary control program firmware manual	3AUA0000085967
Option manuals and guides	
FENA-11 Ethernet adapter module user's manual	3AUA0000093568
FSO-11 safety functions module user's manual	3AUA0000097054
Tool manuals	
Drive composer start-up and maintenance PC tool user's manual	3AUA0000094606

All manuals are available in PDF format on the Internet. See section *Document library on the Internet* on the inside of the back cover.

User's manual

Start-up and maintenance PC tool Drive composer

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About the manual

What this chapter contains

This chapter introduces this manual.

Applicability

This manual applies to the Drive composer PC tool available in two different versions:

- Drive composer entry, DCET-01
- Drive composer pro, DCPT-01 (code: 3AUA0000108087).

Drive composer entry can be downloaded for free by navigating to www.abb.com/drives and selecting Drive PC Tools. Drive composer pro includes all features and is available through ABB sales channels. Both versions require registration.

Note: The features available only with Drive composer pro are indicated with (pro).

Compatibility

Drive composer is compatible with common architecture drives. For example, ACS880 and ACS580 belong to the supported drive families.

Target audience

The reader is expected to be an automation engineering professional or an electrician and familiar with drive products and the concepts regarding their commissioning and operation, including the parameter system of ABB drives. Also a basic knowledge of Microsoft Windows operating system is needed.

Purpose of the manual

This manual describes the Drive composer PC tool and instructs how to use it in the commissioning and maintenance of the ABB drives.

Contents

The manual consists of the following chapters:

- About the manual introduces this manual.
- Overview of Drive composer briefly lists the main features of the Drive composer software and instructs how and where it can be run, and how to get help and additional information.
- Installation and uninstallation of Drive composer describes how to install and uninstall the Drive composer software.
- Connections describes how to make a connection with a drive through USB or Ethernet.
- Main user interface components describes the main user interface components of Drive composer PC tool, including the menus.
- Parameter window describes how to use the parameter window.
- Monitor window describes how to use the monitor window.
- Workspace handling describes the workspace functionality.
- Event logger describes how to use the event logger.
- Diagnostics describes how to troubleshoot a drive with the Support package button of Drive composer and the data logger included in the drive.
- Control diagrams (pro) describes how to use the control diagrams.
- FSO configuration contains the configuration procedure of the FSO-11 safety functions with Drive composer pro and provides an example of how to configure the optional FSO-11 safety functions module.

Terms and abbreviations used in this manual

Term or abbreviation	Explanation
Alarm limit of monitoring	You can set a low or high alarm limit for monitoring. Color(s) of the signal(s) change(s) on the monitoring graph area if the limit is reached.
Assistant	Provides predefined steps for setting the parameters of the drive. For example the basic start-up assistant.
Assistant control panel	Control panel with an USB connector enabling a PC tool connection for common architecture drives. Assistant control panel is a generic name for ACS-AP-I and ACS-AP-S panels.
Autoscaling	Y-axis scaling is set automatically when this button is enabled. User-defined y-axis limits are then disabled. Note: Zooming is not possible in the Autoscaling mode.
Backup	Backup of the drive. Includes all parameters, application program, user sets. ACS880 memory unit consists of FW and all the files that belongs to backup. Primary method to replace a broken drive control board is to use the memory unit from the old one.
	Note: Backup does not include the firmware of the drive.

Term or abbreviation	Explanation
Basic control panel	Control panel with limited basic functionality used with common architecture drives.
Bit mask of monitoring	You can select bits of, eg, the Status word and monitor them individually.
Common architecture drives	For example, ACS880 and ACS580.
Compare parameters	You can compare parameters between drives or between a drive and a file to find out differences.
Control diagrams	Graphical presentation of the drive reference chain or other function. Shows online values of a parameter, switch positions and signals. Parameters can be modified online. Functionality is not available for all drives.
Copy/Download parameters	Visible parameters of a parameter window or custom parameter window are copied/downloaded to a drive.
Cursor tool	Monitor window has a double cursor tool and the positions of cursors can be freely set in the monitor window. y2—y1 and x2—x1 differences are calculated.
Custom parameter window	You can create windows and drag and drop (copy) parameters to those windows. Parameter values can be changed from a window and also saved for offline purposes. Filename extension for custom parameters is *.dccustparams.
Data file viewer	In the Demo/Offline mode, the monitor window can be used as a data file viewer when saved monitored data (*.dcmon) or data logger data is analyzed.
Data logger	Signals are buffered inside a drive with a fast sample interval. Can be triggered and uploaded to the monitor window to be analyzed.
Demo/Offline	You can set/view saved parameter files offline. Demo mode can be used for monitoring and testing functionality of parameters.
DriveAP	Adaptive Programming of the drive. Functionality of drive can be modified by adding some IEC 61131 -based blocks. Adaptive Programming can be done also with an Assistant control panel. Note: Adaptive Programming is not available with all drives.
Event logger	Can consist of faults, alarms and events. Only faults stop the drive. Latest faults and alarms are also seen in parameter interface group 4, Warnings and Faults.
FENA-11	Ethernet adapter module for ABB drives.
LOC/REM	LOC denotes local control of the drive, either with an Assistant control panel or the Drive composer PC tool. REM means that the drive is remotely controlled by the fieldbus master PLC or by I/O connections.
Lock/Unlock parameter	Parameter can be locked by a drive so that the user can see its value but cannot modify it.
Macro script	User-written sequence of macro statements for reading and writing parameters/signals. Filename extension for macro scripts is *.p.
Monitoring	You can set parameters or signals to the monitor window. Values are collected with the sampling interval and drawn to a window.
NLS support	National Language Support, the user interface (UI) of Drive composer can be easily modified by editing language files found in the LANG folder of Drive composer PC tool.
Online/Offline	Online = PC tool is connected with the drive. Offline = PC tool is not connected with the drive. In the Offline mode it is possible to open parameter files, save monitored data etc.

16 About the manual

Term or abbreviation	Explanation
OPC server	OPC DA server interface for Drive composer pro that allows other programs, such as Control Builder Pro (Advanced drive programming), to communicate with the drive.
Refresh the parameter	Parameter values are updated when a group is opened. You can set parameters to the Auto-update mode or refresh the value manually. Signals are always updated automatically. Signals are bolded in the parameter list.
Report	You can use report templates for energy savings, commissioning and maintenance. Templates can be modified.
Restore	You can restore the drive. You can select the parameters to be restored during the restore operation. For example, motor identification run results can be restored or deleted during the restore operation. Can be used for cloning drives.
Save parameters	Visible parameters of a parameter window or custom parameter window are saved to a file. Filename extension for saved parameters is *.dcparamsbak. Note: Some values are not editable in the Offline mode.
Support diagnostics package	You can collect all data from a drive for troubleshooting purposes by clicking a button in Drive composer or on an Assistant control panel.
Workspace	Workspace consists of the user interface status, such as parameters shown in the custom parameter window(s) and their status. You can save the current workspace status to a file and restore them later. Custom parameter windows with their contents and the monitor window contents (signals selected, scalings, colors) are saved to a workspace. You can set one default workspace. Filename extension for the workspace is *.dcxml.

Overview of Drive composer

What this chapter contains

This chapter briefly lists the main features of the Drive composer software and instructs how and where it can be run, and how to get help and additional information.

Drive composer

Drive composer is a 32-bit Windows application for commissioning and maintaining ABB common architecture drives.

The full version is called Drive composer pro and the limited version Drive composer entry. Both versions include a demo that allows testing user interface functionality, edit parameter files offline or open and analyze saved monitored files without connecting to a physical drive.

Highlights

With Drive composer, it is possible to:

- control a drive: start, stop, direction, speed/torque/frequency reference
- monitor the operation and status of a drive
- view and adjust drive parameters
- monitor signals in numerical and graphical (trending) format
- work simultaneously with multiple drives like master and follower drives (pro)
- display control diagrams of a drive for parameter setting and diagnostic purposes (pro)
- create user-specific workspaces by customizing parameter windows
- handle workspaces
- create and execute macro scripts (pro)
- use Ethernet-based fieldbus adapter modules for PC tool communication (one-wire solution, Profinet, Ethernet IP) (pro) or a drive-embedded Ethernet port
- use the USB port of an Assistant control panel for an USB connection
- use an OPC-based commissioning and maintenance tool (pro).

Features

Feature	Drive composer entry	Drive composer pro
Parameters can be modified	Yes	Yes
Parameters can be searched	Yes	Yes
Parameters changed by the user have an orange background	Yes	Yes
Parameters can be saved to a file	Yes	Yes
Parameters can be copied/downloaded to a drive	Yes	Yes
Parameter windows can be customized	Yes	Yes
Parameters can be printed	Yes	Yes
Parameters can be edited offline	No	Yes
Parameters can be compared between parameter lists or drives	No	Yes
Data for the support service can be collected by clicking the Support package icon	Yes	Yes
As a simple monitoring method for basic purposes, signals can be monitored slowly, 2 signals per second	Yes	Yes
Monitored data can be saved to a hard drive of a PC	Yes	Yes
Monitored data can be exported to a PC by using the csv format file	Yes	Yes
For a professional analysis of a single drive or multidrives, max 32 signals can be monitored and 8 of them can be monitored fast	No	Yes
Contents of an event logger (faults, warnings) can be viewed	Yes	Yes
Contents of the System info (drive serial number, modules, versions, SW etc.) can be viewed	Yes	Yes
Full backup/restore can be used for restoring or cloning a drive	No	Yes
Full backup/restore of multidrives can be used for restoring or cloning in a network of drives	No	Yes
PC can be used to analyze the data logged in a drive by a data logger	No	Yes
Assistants can be used to start up a drive easily	No	Yes
Macro scripts can be created and executed	No	Yes
Safety settings can be configured to a safety functions module (FSO)	No	Yes
Point-to-point USB can be connected through a panel port	Yes	Yes
Network drives can be connected via Ethernet or with a panelbus	No	Yes
Control diagrams of a drive can be used for parameter setting and diagnostic purposes	No	Yes
User interface can be easily translated into different languages	Yes	Yes

Hardware and software requirements

Drive composer hardware

- USB type A (PC) type mini B (panel) cable for connecting Drive composer entry/pro through the USB port of the control panel to a drive (max 3 m)
- Ethernet cable RJ45 if the connection is made through FENA-11 or embedded Ethernet

Computer hardware

- IBM compatible PC
- Pentium 2000 MHz or a faster processor (recommended)
- 1GB RAM
- 1024 x 768 display resolution with 256 colors
- · At least 50 MB free hard disk space
- CD drive
- One free USB port or Ethernet port

Software

- Operating system Windows XP, Vista or Win 7 (32 or 64 bit operating system)
- .NET 3.5 SP1 (included with Win 7)

Installation and uninstallation of **Drive composer**

What this chapter contains

This chapter describes how to install and uninstall the Drive composer software. Drive composer entry can be taken into use without the installer program.

Determining the current Drive composer version

To find out the version of the Drive composer PC tool, select **About the product** on the Help menu. The About the product dialog box containing the Drive composer version is shown.



Figure 1. About the product dialog box

Using Drive composer entry without the installer

Read carefully the license agreement (License.pdf from the downloaded package of Drive composer entry).

To obtain Drive composer entry without using the installer program:

- copy the installation files to your PC
- install the Assistant control panel PC drivers as instructed in chapter Connections.

Note: The installation of Assistant control panel PC drivers requires administrator rights.

Note: You must have .NET 3.5 SP1 on your PC. Check the version by clicking **Start -> Settings -> Control panel -> Add or Remove programs**. If you do not have .NET 3.5 SP 1 or newer, download it from:

http://www.microsoft.com/downloads/en/details.aspx?FamilyID=ab99342f-5d1a-413d-8319-81da479ab0d7

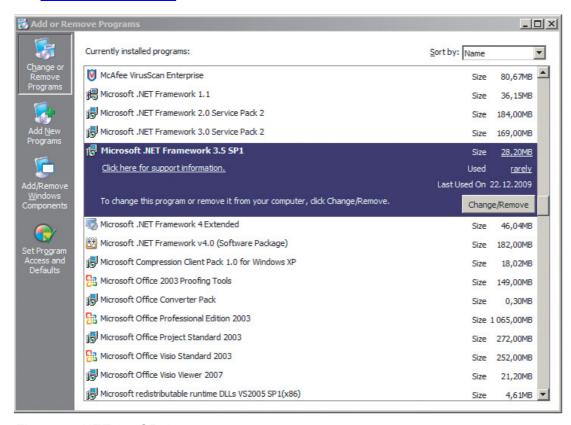


Figure 2. .NET 3.5 SP 1

To remove Drive composer entry from your PC, delete all files that are in the folder where you unzipped the Drive composer entry files.

Note: Before deleting all files make sure you do not have your own files – for example saved parameter files, your workplaces or saved custom parameter windows – in the folder structure of your Drive composer entry PC tool.

Installing Drive composer with the installer

It is recommended that you uninstall all previous versions of Drive composer before installing a new version. Quit all applications before starting the installation.

- 1. Run the setup.exe file from the folder where you unzipped the Drive composer files.
- 2. With Windows 7 right-click on the setup.exe file and select **Run as administrator**.
- 3. When the Drive composer installation wizard window is shown, click the **Next >** button.



Figure 3. Welcome to the Drive composer entry 1.0.2.0 Setup Wizard window The second window asks you to read the license agreement of Drive composer.

4. If you accept the conditions of the license, select I agree and click the Next > button.



Figure 4. License Agreement window

5. Select the location of the installation folder and click the **Next >** button.

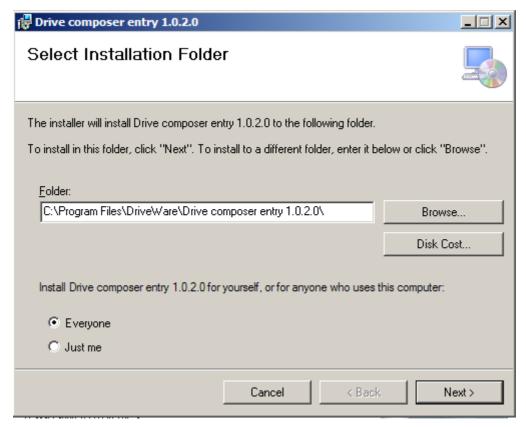


Figure 5. Select Installation Folder window

6. If you want to create a shortcut of Drive composer on the desktop, select Yes, I would like to create the shortcut.



Figure 6. Shortcut window

The installation is complete and Drive composer entry is now ready for use.

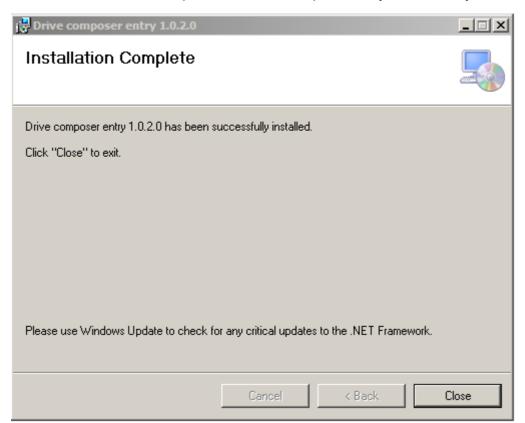


Figure 7. Installation Complete window

Uninstalling Drive composer with the installer

Note: You must have administrator privileges to be able to complete the uninstallation.

1. In the Add or Remove Programs window of the Control Panel, click the Change or **Remove** icon and browse for Drive composer in the Currently installed programs list, select it and click Remove.

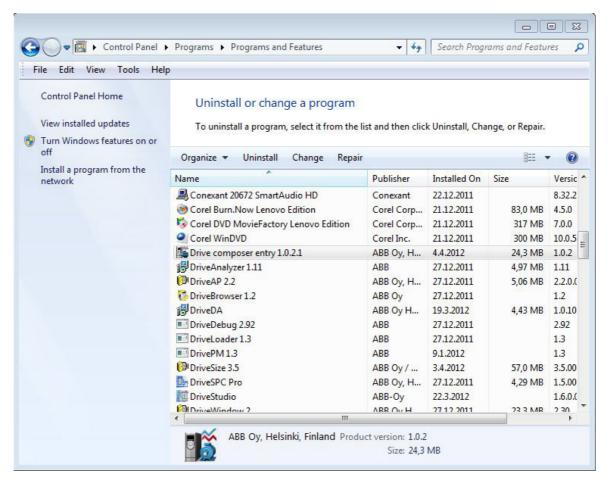


Figure 8. Removing Drive composer

Note: In Win 7, the window is called **Programs/Uninstall a program**.

2. Click the **Yes** button to confirm that you want to remove the application.

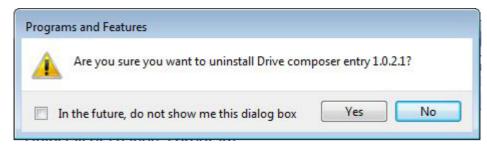


Figure 9. Confirming the removal of Drive composer

The uninstallation starts.

28	Installation and uninstallation of Drive composer

Connections

What this chapter contains

This chapter describes how to make a USB connection or an Ethernet connection to an ABB drive with Drive composer.

Assistant control panel drivers

An Assistant control panel (ACS-AP-x panel) cannot be used with a PC until the drivers have been installed. If Drive composer entry is used without the installer program, the drivers must be installed separately as instructed below.

The drivers have been copied in the installation folder of Drive composer entry (by default C:\Program Files\DriveWare) or to the user-changed installation path.

You can also find the drivers from the Drive composer entry.zip file that can be downloaded by navigating to www.abb.com/drives and selecting Drive PC Tools.

Note: You must have administrator rights for the driver installation.

Installing Assistant control panel drivers for a Windows XP PC

Connect the Assistant control panel to your PC.
 The following dialog box appears:



Figure 10. Welcome to the Found New Hardware Wizard dialog box

- 2. Select No, not this time.
- 3. Select Install from a list or specific location (Advanced).

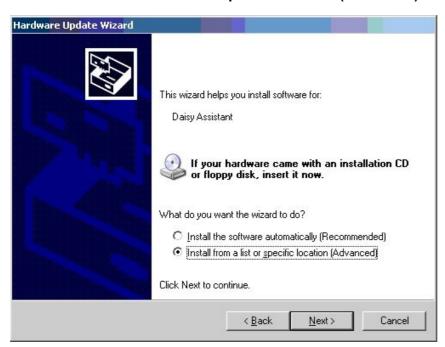


Figure 11. Install from a list or specific location (Advanced) option selected

4. Browse to the location of the installed files.

Normally the location is the following:

C:\Program files\DriveWare\Drive composer entry tool\Panel ilf files.

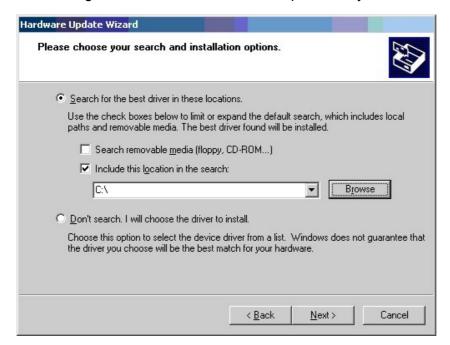


Figure 12. Search and installation options selected

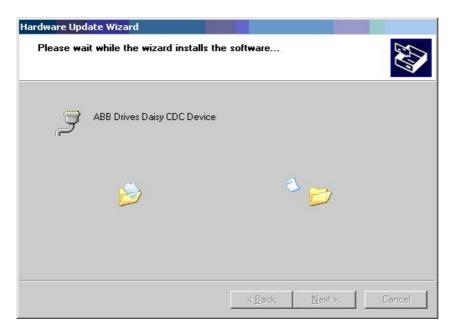


Figure 13. ABB Drives Daisy CDC Device dialog box

- 5. Click Next >.
- 6. In the next dialog box, click **Finish**.

The following dialog box appears:



Figure 14. Welcome to the Hardware Update Wizard dialog box

- 7. Select No, not at this time.
- 8. Select Install from a list or specific location (Advanced).

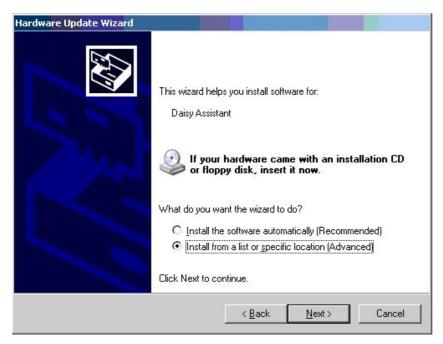


Figure 15. Install from a list or specific location (Advanced) option selected

- 9. Browse to the location of the installed files.
- 10. Select Next >.

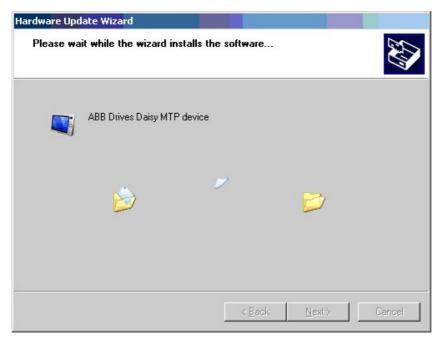


Figure 16. ABB Drives Daisy MTP device dialog box 11. Click Finish.



Figure 17. Completing the Hardware Update Wizard dialog box

12. To check the COM port number, right-click **My computer** on the desktop and select **Manage**.



Figure 18. COM port number check

13. Select Device Manager and click Ports (COM&LPT).

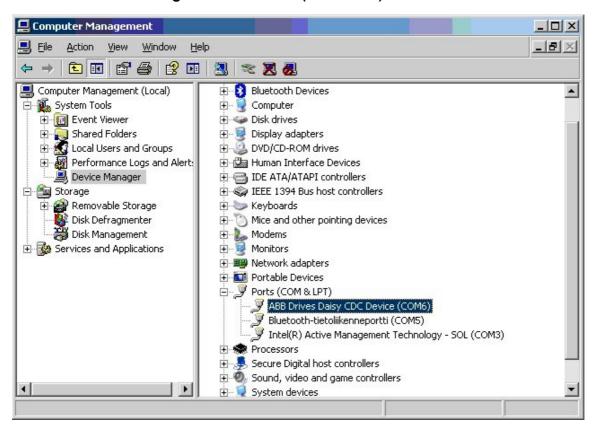


Figure 19. Ports (COM&LPT) selected

In this example, the Assistant control panel uses always COM6 on this PC.

Note: After installing the drivers, always use the same USB port when connecting the Assistant control panel with Drive composer entry. If the used USB port is changed, the COM port must be changed accordingly. Drive composer pro scans all COM ports.

Installing Assistant control panel drivers for a Windows 7 PC

1. Connect the Assistant control panel to your PC. The first part of drivers are installed automatically and the following window appears. The Assistant control panel can be used as a USB device.

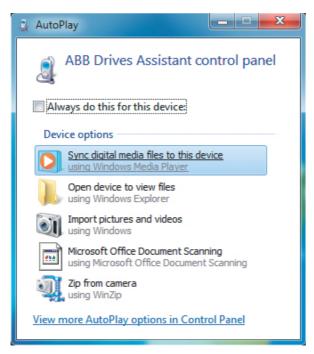


Figure 20. AutoPlay window

- 2. Install the second part of drivers manually as follows (after the installation of the second part of drivers has failed).
- 3. Enter com to the search field and select Computer Management.

The following dialog box appears when the program opens.

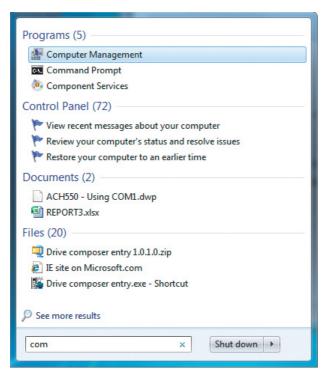


Figure 21. Computer Management program

- 4. Open group Device manager / Portable devices.
- Right-click ABB Drives Assistant Control Panel and select Update Driver Software....

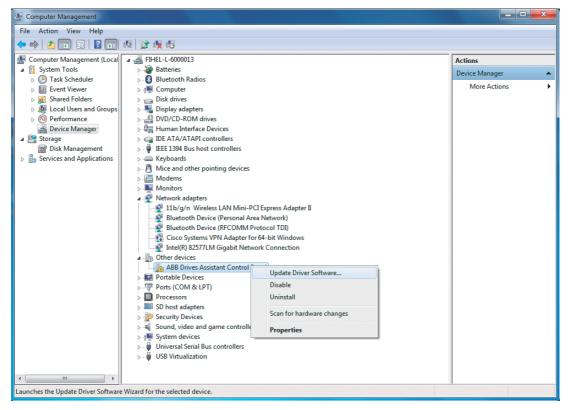


Figure 22. Update Driver Software selected

6. Browse to the location of the drivers (normally: C:\Program files\DriveWare\Drive composer entry\Panel ilf files).

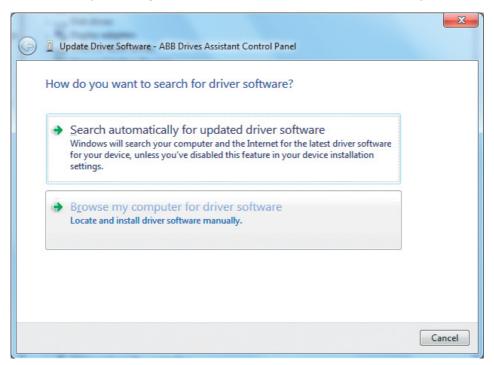


Figure 23. Search for the driver software

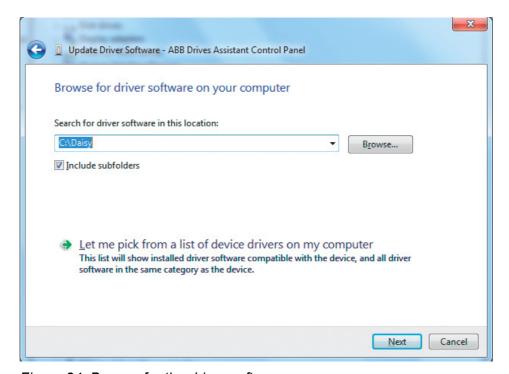


Figure 24. Browse for the driver software

7. If the following warning message appears, click Install this driver software anyway.

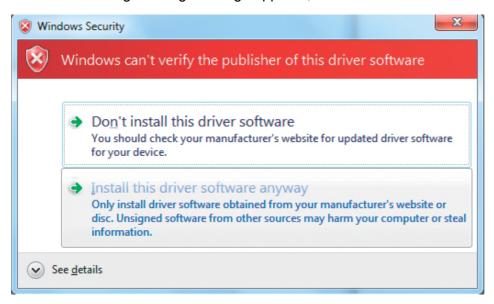


Figure 25. Windows Security message

8. Wait until the driver has been installed.

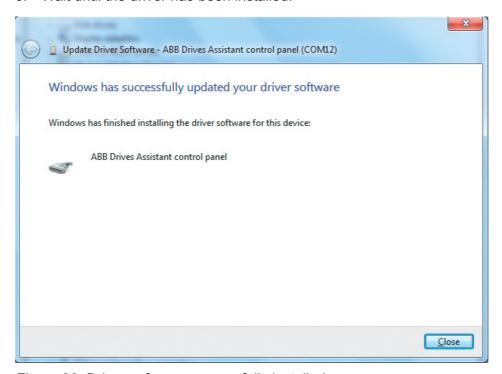


Figure 26. Driver software successfully installed

9. Write down the COM port number, for example COM12.

Note: You must install the drivers onto the USB port where you want to use the Assistant control panel again.

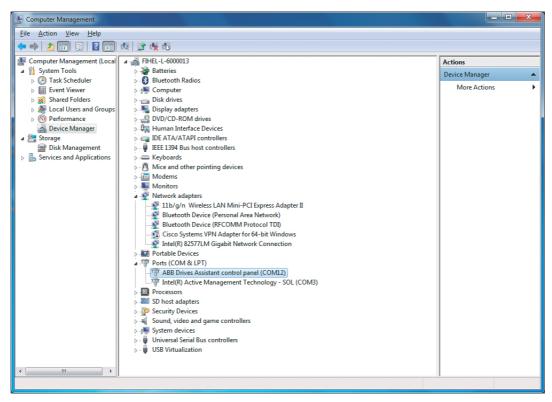


Figure 27. COM port number

Connecting to a drive with an Assistant control panel for the first time

To establish a connection between Drive composer and a drive, you must connect a USB type A (PC) type mini B (panel) cable between the USB port of a computer and the USB port of an Assistant control panel (ACS-AP-x panel). The maximum length of the USB cable is 3 m. If the drive is used without an Assistant control panel or with a Basic control panel, a separate USB/485 adapter is needed for the connection between Drive composer and the drive.

1. Connect your PC to the Assistant control panel with a USB cable.

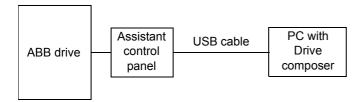


Figure 28. USB connection between Assistant control panel and PC

The following text appears on the Assistant control panel screen: "USB connected".

Note: The Assistant control panel cannot be used when it is connected to a PC.

- 2. Launch Drive composer by double-clicking **Drive composer entry/pro.exe**.
- Select the COM port that your Assistant control panel is using.
 This question is asked only when the program is launched for the first time. If you want to change the COM port settings, go to View -> Settings in Drive composer.



Figure 29. COM port number required

In this example the Assistant control panel uses COM port 6.

- 4. Click OK.
- 5. Click **Connect** if you want to connect to the drive.

Note: The status LED starts flickering in the Assistant control panel indicating that there is data transfer between drive and PC and the LED keeps blinking as long as there is a PC tool connected to the drive. The welcome dialog box is shown on the screen indicating that the application is being initialized.

Click **Demo** if you want to choose the Demo or Offline mode

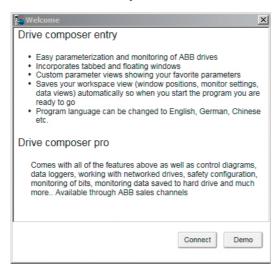


Figure 30. Connect/Demo button

Drive composer loads parameters and the following window appears.

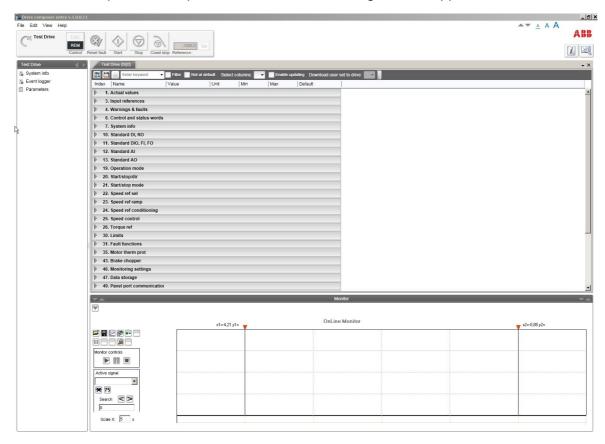


Figure 31. Parameters loaded

You have now an online connection to the drive. If you have a single drive and a pointto-point connection, move to chapter *Parameter window*.

If you failed to make an online connection to the drive, go to **View -> Settings** to check your COM settings and click View -> Refresh (Ctrl + R) to reconnect Drive composer to the drive.

Changing the language settings

To change the language settings of the Drive composer UI, go to View -> Settings. To choose the default language of, for example, the menu or button texts in Drive composer, go to View -> Settings and select the default language for Drive composer from the dropdown menu. To choose the default language for parameters, go to View -> Settings -> Drive default language and select the language from the drop-down menu. By changing these language settings you can always use the same language when you connect Drive composer to the drive. After changing the language settings press View -> Refresh (Ctrl + R) or close Drive composer and open it again.

Connecting to a drive via an Ethernet network

Ethernet network connection

There are ABB drives which have control boards with an embedded Ethernet port and ABB drives in which the Ethernet connection is made with FENA-11 Ethernet adapter module. For the installation of the adapter module, see *FENA-01/-11 Ethernet adapter module user's manual* (3AUA0000093568 [English]).

Note: The PC/Ethernet Switch firewall must be configured to allow a connection for Drive composer pro (port http 80 and UDP) or the firewall must be disabled.

Creating an Ethernet network connection with Drive composer (pro)

- 1. Connect FENA-11 to a drive.
- 2. Create a point-to-point connection from Assistant control panel or Drive composer to each drive.
- 3. If you use one adapter module with a drive, enable the FENA-11 Ethernet adapter module by setting parameter 50.01 FBA A enable to Enable and parameter 50.21 FBA A Timelevel sel to Fast.
- 4. If you use two fieldbus adapters with the drive and FENA-11 has been installed as FBA B, enable FENA-11 by setting parameters 50.31 FBA B enable to Enable and 50.51 FBA B Timelevel sel to Fast.
- 5. Set a static IP address for each drive. See *FENA-01/-11 Ethernet adapter module user's manual* (3AUA000093568 [English]).

~	51. FBA A settings					
1	FBA type	Ethernet	NoUnit			None
2	Protocol/Profile	MB/TCP ABB C	NoUnit			MB/TCP ABB C
3	Commrate	Auto	NoUnit			Auto
4	IP configuration	Static IP	NoUnit			Static IP
5	IP address 1	192	NoUnit	0	255	0
6	IP address 2	168	NoUnit	0	255	0
7	IP address 3	0	NoUnit	0	255	0
8	IP address 4	11	NoUnit	0	255	0
9	Subnet CIDR	24	NoUnit	0	32	0

Figure 32. IP settings of the drive with Drive composer

- 6. Refresh the settings with parameter 51.27 FBA par refresh.
- 7. Name each drive to facilitate the recognition of drives when creating an Ethernet network connection.

If you use Drive composer, name the drives on the System info tab by typing the name to the Drive name field and clicking **Set**.

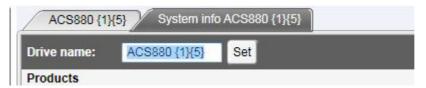


Figure 33. Naming a drive with Drive composer

Note: The drive name changes after the view has been refreshed. The previous names in other existing workspaces are not affected.

If you use Assistant control panel, name the drives through the Setting menu of the panel.

8. Configure TCP/IP address of your PC. In this example the TCP/IP address is 192.168.0.1. For more information on configuring the TCP/IP address, see Configuring the TCP/IP address with WinXP or Configuring the TCP/IP address with Win 7.

Configuring the TCP/IP address with WinXP

1. Go to Settings -> Network Connections.

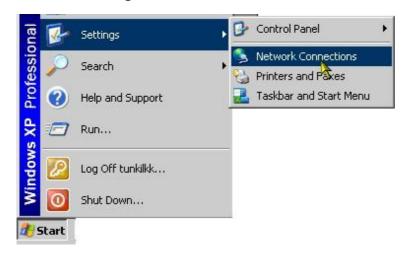


Figure 34. Configuring the TCP/IP address with WinXP

44 Connections

The Network Connections window appears.

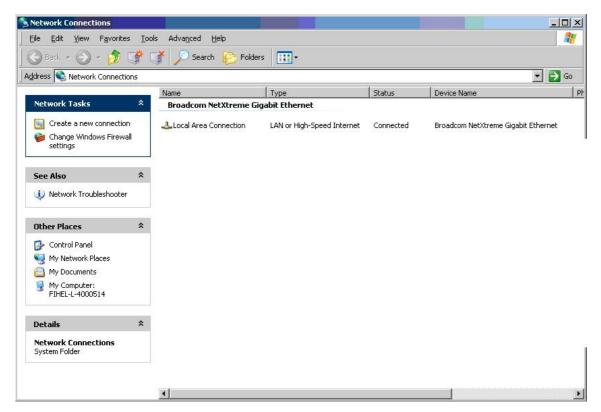


Figure 35. Network Connections window

Double-click the used connection.
 The Local Area Connection Status dialog box appears.

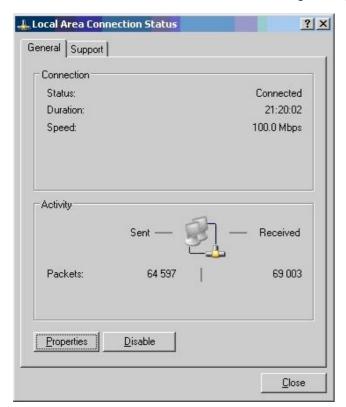


Figure 36. Local Area Connection Status dialog box

- 3. Click the **Properties** button.
- 4. Select Internet Protocol (TCP/IP) and click OK.

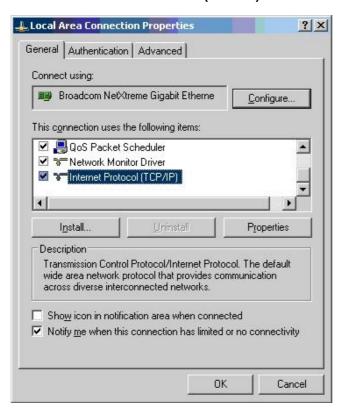


Figure 37. Local Area Connection Properties dialog box

5. Select **Use the following IP address** and type the IP address and the subnet mask. Click OK.

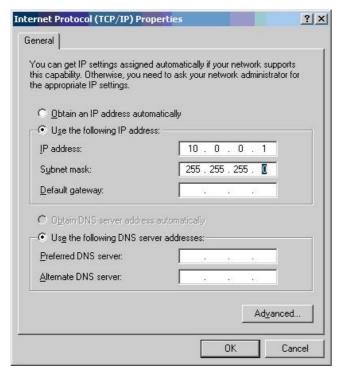


Figure 38. Use the following IP address option selected

Configuring the TCP/IP address with Win 7

1. Go to Control Panel and click View network status and tasks.



Figure 39. Win 7 Control Panel

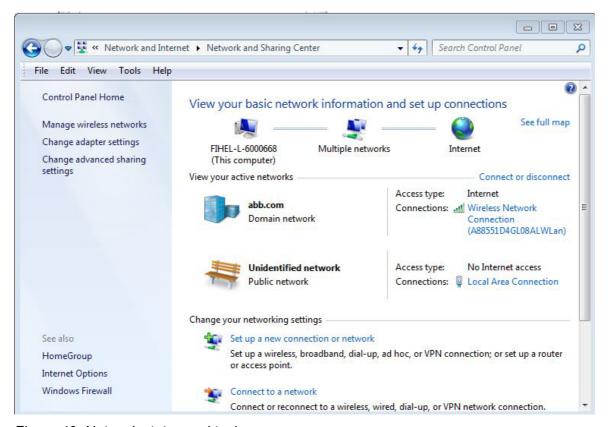


Figure 40. Network status and tasks

2. Click **Change adapter settings** on the left-hand side and select the adapter in which you want to modify the settings.

The following dialog box appears.

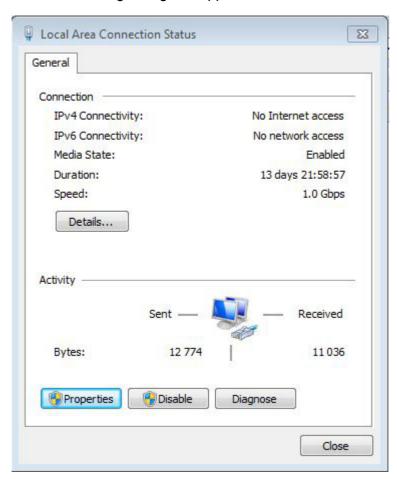


Figure 41. Local Area Connection Status dialog box

3. Click the **Properties** button.

4. Select Internet Protocol Version 4 (TCP/IPv4) and click OK.

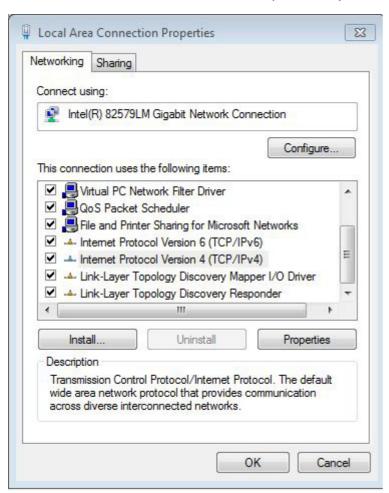


Figure 42. Local Area Connection Properties dialog box

5. Select **Use the following IP address**, type the IP address and subnet mask and click OK.

You do not need to define the default gateway.

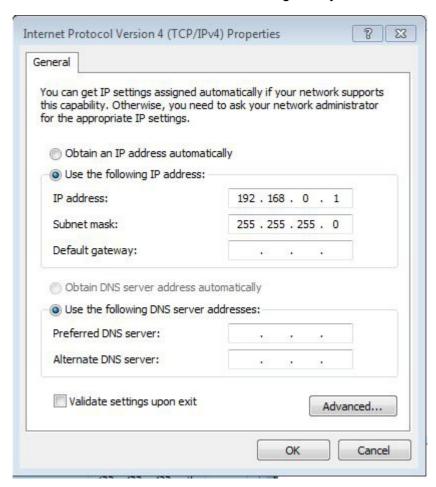


Figure 43. Selecting the IP address and subnet mask

6. Connect the RJ45 cable between FENA-11 and the PC. Alternatively, connect all drives and the PC to the same Ethernet switch.

7. Open a DOS command prompt (cmd.exe) and ping all the drives that you have configured.

Note: You must open http port 80 of the firewall on your PC to enable Drive composer pro to communicate with drives.

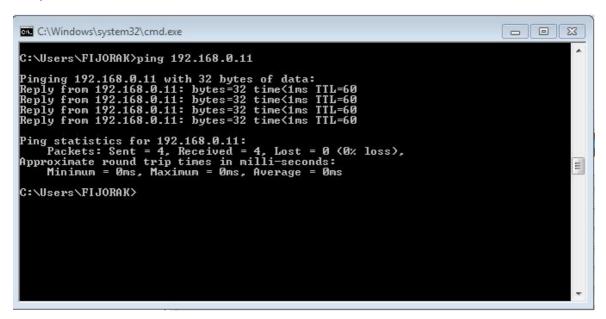


Figure 44. Pinging drives

8. Open Drive composer pro.

Drive composer scans all COM ports and Ethernet ports to find drives. This takes a while.

If problems arise, see *Ethernet tool network for ACS880 drives application guide* (3AUA0000125635 [English]).

Connecting network drives (pro)

Panel bus network connection

ABB drives with an ACS-AP-x panel can be daisy-chained through the control panel ports as a network either for a PC tool or a panel bus connection.

Note: Some ABB drives control boards (for example, ZCU-13) do not have any daisychain connectors. For those drives, a panel bus connection can be created with FDPI-02 option modules. See FDPI-02 diagnostics and panel interface user's manual (3AUA0000113618 [English]) for more information.



Figure 45. Creating a panel bus

Creating a panel bus with Drive composer (pro)

- 1. Create a point-to-point connection from the Assistant control panel or Drive composer to each drive.
- 2. Set an independent node ID for each drive (with parameter 49.01 Node ID number). The node ID must be between 1...32.
- 3. Refresh the settings (with parameter 49.06 Refresh settings).
- 4. With parameter 49.05 Communication loss action, define how the drive reacts to a control panel (or PC tool) communication break by selecting No action.

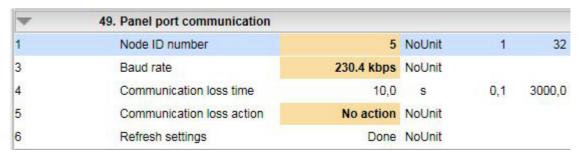


Figure 46. Panel port settings with Drive composer

5. Give a name for each drive to facilitate the recognition of drives when creating a panel bus connection.

If you use Drive composer, name the drives on the System info tab by entering the name to the Drive name field and clicking Set.



Figure 47. Naming a drive with Drive composer

Note: The drive name changes after the view has been refreshed. The previous names in other existing workspaces are not affected.

If you use Assistant control panel, name the drives through the Setting menu of the panel.

- 6. Remove all panels connected to drives.
- 7. To daisy-chain the drives connect a standard RJ45 cable to the left-hand side connector of the Assistant control panel in the first drive (the left-hand side drive in figure *Creating a panel bus* on page *51*).
- 8. Connect a standard RJ45 (twisted CAT5) cable from the right-hand side connector of the Assistant control panel in the first drive to the left-hand side connector of the Assistant control panel in the second drive.
- 9. Continue chaining the rest of the drives as described above.
- 10. If there is a long distance between the first and last drive in a panel bus, set the resistor to the ON position in the last node.

Connecting to the panel bus with Drive composer (pro)

- 1. Connect a USB cable between the Assistant control panel and your PC.
- 2. Double-click **Drive composer pro.exe** to launch Drive composer.

The status LED starts flickering on the Assistant control panel.

Note: It may take a long time before all drives are found.

After Drive composer has connected to the drives, the following message appears.



Figure 48. Initializing application message

Note: Drive composer does not open automatically any parameter window or other object.

3. Make sure that you see all drives in the Drive list.

Note: If you do not see all the drives, close the PC tool and try again. If you still do not see all drives, check Group 49 Panel port communication for the settings of the missing drives.

4. Select a drive from the Drive list by clicking it.

Main user interface components

What this chapter contains

This chapter describes main user interface (UI) components and how to use them. The user interface is designed so that the need to use menus has been minimized. All main functions are available on the component level.

Overview

The user interface consists of the following parts:

- 1. Title bar
- 2. Menu bar
- 3. Drive control panel
- 4. Drive list
- 5. Status panel (including the output view of the selected drive)
- 6. Working area for parameter windows, event logger, control diagrams, assistants etc.

The working area can be used either with tabs or floating windows. The figure below shows the user interface with floating windows.

The size of the drive list can be adjusted to the left/right. Similarly, the size of the working area can be adjusted by dragging the white separating line up/down. Most of the windows that are not maximized can be resized by dragging any corner. Scroll bars appear on the side or bottom of a window if it is possible to scroll the content.

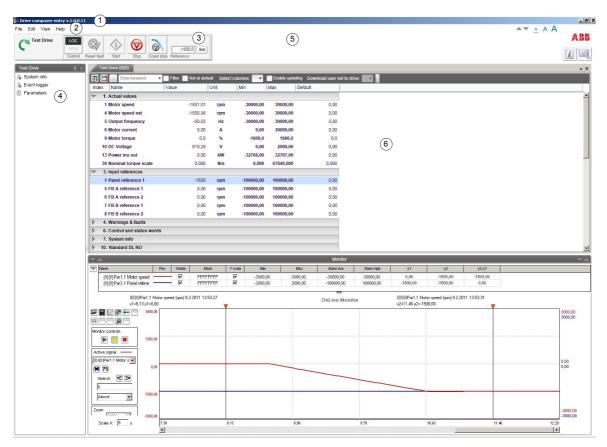


Figure 49. Overview of the user interface

Title bar

The title bar is located at the top of the main window. It consists of the following parts:

- System menu icon
- Application name and version number (Drive composer entry/pro)
- Name of the workspace (if there is an active workspace)
- Minimize button which has the same function as Minimize in the System menu
- Maximize/Restore Down button (the name depends on the status of the maximized window) which has the same function as **Maximize** or **Restore** in the System menu
- Close button which has the same function as **Close** in the System menu. **Note:** When you close the application, you have to confirm that you want to do it.



Figure 50. Title bar

To reduce the main window to the taskbar or a sub-window to the bottom of the window area, click the **Minimize** button or go to **System menu -> Minimize**.

To enlarge the window to fill the available space, click the **Maximize** button or go to **System menu -> Maximize**.

To restore the window to the size and position it had before it was maximized, click **Restore Down** button or go to **System menu -> Restore**.

You can also maximize or restore the window by double-clicking the title bar.

To move a window, drag the title bar. To move a dialog box, drag its title bar. If you have maximized or minimized a window, you cannot move it by dragging the title bar.

To end your Drive composer session, click the Close button. Before closing down, Drive composer may:

- warn you about releasing control of the drive if the drive is controlled locally by Drive composer
- prompt you to save the workspace with unsaved changes
- remind you to save your monitor data
- remind you of unfinished printing.

Note: To disable the function prompting you to save the workspace with unsaved changes, go to View -> Settings.

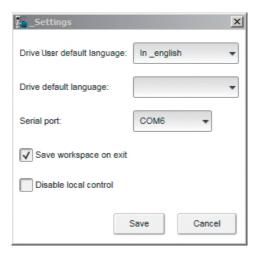


Figure 51. Save workspace on exit function

You can close Drive composer by

- double-clicking the System menu icon
- selecting Close in the System menu
- selecting Exit in the File menu
- pressing the shortcut key Alt+F4.

System menu

You can open the System menu by

- left- or right-clicking the System menu icon
- pressing the shortcut key Alt+space bar
- right-clicking within the non-button area of the title bar.

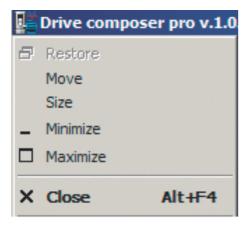


Figure 52. System menu

There are simple system menus on the dialog box level. You can open the System menu of a dialog box by

- clicking the System menu icon of the dialog box
- · right-clicking within the non-button area of the title bar
- pressing the shortcut key Alt+space bar.

The System menu contains the following commands:

- Restore which has the same function as the Maximize/Restore Down button in the
 title bar when the window is maximized. The Restore command restores the window
 to its size and position which it had before it was maximized.
- Move which can be performed also by dragging the title bar. After selecting the Move
 command from the System menu, it is possible to move the window with the arrow
 keys. To stop moving the window, press Enter. To cancel the move, press Esc.
- **Size** which can be performed also by dragging any of the sides or corners of the window. After selecting the Size command, it is possible to resize the window with the arrow keys. To stop resizing the window, press Enter. To cancel resizing, press Esc.
- **Minimize** which has the same function as the Minimize button in the title bar. The Minimize command reduces the window to the taskbar or to the bottom of the window area.
- Maximize which has the same function as the Maximize button in the title bar when
 the window has not been maximized. The Maximize command enlarges the window to
 fill the available space.
- **Close** which has the same function as the Close button in the title bar. The Close command ends the Drive composer session.

Menu bar

The menu bar is located immediately below the title bar. It always contains the following drop-down main menus:

- File
- Edit
- View
- Tools (pro)
- Help.

To open a drop-down menu, click its name on the menu bar.

To execute a command from a menu, click its name on the menu. You can also use the arrow keys to navigate between the menus and within a menu. To execute a highlighted command, press Enter. To close a menu, press the Esc key. You can also use the shortcut keys to execute the commands.

File menu

The File menu is always located in the menu bar.

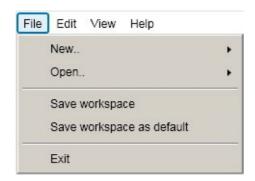


Figure 53. File menu

The menu contains the following commands:

- **New...** opens a window where you can select a custom parameter set window. The keyboard shortcut for the Custom parameter set command is Ctrl+N.
- Open... opens a new dialog.

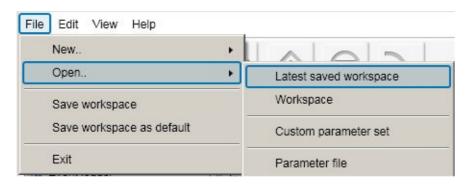


Figure 54. Open command

- Latest saved workspace opens the latest saved workspace. The keyboard shortcut for the Latest saved workspace command is Ctrl+L.
- Workspace opens a new window where you can select the saved workspace to be opened. The keyboard shortcut for the Workspace command is Ctrl+O.

- Custom parameter set opens a new window where you can select the saved custom parameter window to be opened. The keyboard shortcut for the Custom parameter set command is Alt+W.
- Parameter file opens a new window where you can select the saved parameter file to be opened. The keyboard shortcut for the Parameter file command is Alt+P.
- Save workspace saves the active workspace to a file. The keyboard shortcut for the Save workspace command is Ctrl+S.
- Save workspace as default saves the active workspace to be the default workspace. The default workspace opens automatically when Drive composer is opened. The keyboard shortcut for the Save workspace as default command is Ctrl+D.
- Exit ends the Drive composer session.

Edit menu

The Edit menu is always located in the menu bar.



Figure 55. Edit menu

The menu contains the language commands with which you can select the language for the Drive composer user interface.

Note: The change in language takes place only after you have closed the Drive composer session and opened a new one.

View menu

The View menu is always located in the menu bar.



Figure 56. View menu

The View menu contains the following commands:

- Normal text font size for selecting the normal font size. The keyboard shortcut for Normal text font size is Ctrl+F6.
 - Note: The change in the font size does not affect the size of the monitor window font.
- Large text font size for selecting the larger font size. The keyboard shortcut for Large text font size is Ctrl+F7.
- The largest text font size for selecting the largest font size. The keyboard shortcut for The largest text font size is Ctrl+F8. The font sizes can be also be changed with the following A-letter icons.



Figure 57. A-letter icons for changing the font size

- Tabs for changing the working area to be viewed as tabs. The keyboard shortcut for Tabs is Alt+T.
 - **Note:** The monitor window cannot be tabbed.
- Floating windows for changing the working area to be as a separate window. The keyboard shortcut for Floating windows is Alt+F.
 - **Note:** The monitor window cannot be a floating window.
- Tile horizontally for changing floating windows to be tiled horizontally. The keyboard shortcut for Tile horizontally is Alt+H.
- Tile vertically for changing floating windows to be tiled vertically. The keyboard shortcut for Tile vertically is Alt+V.

- Cascade for changing floating windows to be cascaded. The keyboard shortcut for Cascade is Alt+C. The cascaded windows can be resized and freely located in the working area.
- Refresh for creating a new connection to the drive (uploads parameter information from a single drive and creates a new connection with multidrives). The keyboard shortcut for Refresh is Ctrl+R.
- **Settings** for defining the language and serial port, and for choosing whether the workspace is saved on exit and whether the local control is disabled.

Tools menu (pro)

The Tools menu is located in the menu bar. The commands of the Tools menu vary between SW versions and drives.

The menu contains the following commands:

- EDS Export for creating the EDS files of a connected drive. The keyboard shortcut for EDS Export is Ctrl+I.
- **Compare drive data** for comparing parameters of two drives or a parameter file and a drive or two parameter files. The keyboard shortcut for Compare drive data is Alt+C.
- **Backup network** for creating backups of all connected drives in a PC tool network. The keyboard shortcut for Backup network is Ctrl+ B.

Help menu

The Help menu is always located in the menu bar.

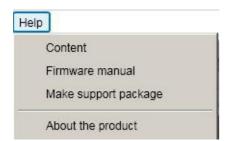


Figure 58. Help menu

The Help menu contains the following commands:

- Content or the F1 key opens the Drive composer user manual as a PDF file.
- Firmware manual or the F3 key opens the firmware manual of the drive in a separate
 window as a PDF file. If you have selected a parameter or some other significant item
 when you click this command or press the F3 key, the appropriate chapter in the
 firmware manual is displayed.
- About the product opens a window displaying the program information, version number and copyright text.

Drive control panel

The drive control panel is located below the menu bar. It has buttons for controlling a connected drive. It also shows the status of the drive.



Figure 59. Drive control panel

The drive control panel contains the following buttons and items:

- Name and node number of the currently controlled drive and an indication if it is running. See below for status icons explanations.
- Control button for controlling the selected drive with Drive composer or releasing the control of the drive.
- Reset fault button for sending a reset command to the drive. If the fault is no longer active, the drive clears it.
- Start button for starting the currently controlled drive. A motor connected to the drive starts rotating according to the set reference value.
- Stop button for stopping the rotation of the motor connected to the currently controlled drive.
- Coast stop button.
- Reference value field for entering a new reference value. When you click the Reference field, a tooltip tells you max and min limits for the reference and current reference value.
- Reference field for showing the reference used in the drive. The reverse direction is set manually with the - sign.
- Set button for enforcing the value in the Reference value field to the currently controlled drive. The same command can be performed by pressing **Enter**.

Drive list panel

The drive list panel shows all connected drives and open files. Drives are indicated with a motor icon (clockwise open circle arrow).

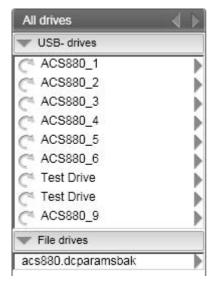


Figure 60. Drive list panel in Drive composer pro

A grey circle arrow indicates a stopped drive.



Figure 61. Stopped drive

A green circle arrow indicates a running drive.



Figure 62. Running drive

A red circle with a white cross (x) indicates a faulty drive.



Figure 63. Faulty drive

An orange background means that a drive that has an alarm.



Figure 64. Drive with an alarm

A red broken line (—//—) means that the connection to a drive has broken.



Figure 65. Drive with a broken connection

The views for a drive – parameter window, data logger, event logger, system info, assistants (if such are available for the drive), control diagrams (if such are available for the drive) – can be seen by clicking with the primary mouse button and selecting the corresponding icons from the pop-up window.

You can open those views either as new tabs or floating windows. If an active window is associated with a drive or a file, the corresponding tree item is highlighted in the drive list.

Using the drive control panel for starting the drive

- 1. See the firmware manual of the drive for parameters you must set before starting.
- 2. Click the Control button. The control box indicator changes to LOC.
- 3. Enter a reference value and press Enter or click the Set button.
- 4. Click Start.

The drive starts. The indicator box arrow changes to green.

Note: Limit settings in group 30 affect reference limits.

Working area

Parameter windows, custom parameter windows, event logger, system info, control diagrams, assistants etc. are shown in the working area. The user interface is tabbed by default. You can change the order of tabs by dragging them. You can open tabs for a single drive or for multiple drives.

The working area can be set to a floating window. Then parameter windows, custom parameter windows, event logger, system info, control diagrams, assistants etc. are shown as floating windows. The floating windows can be tiled vertically or horizontally or cascaded by using the commands in the View menu.

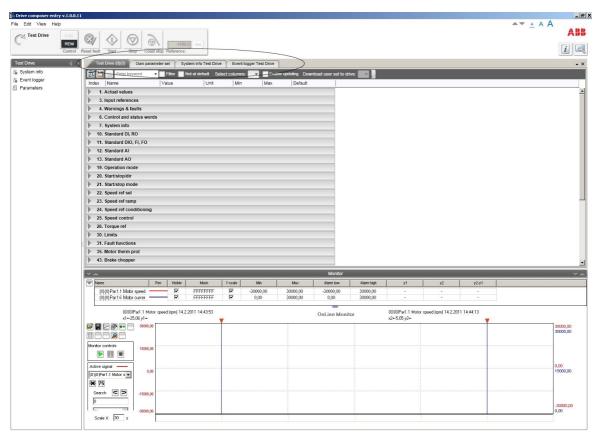


Figure 66. Tabbed user interface

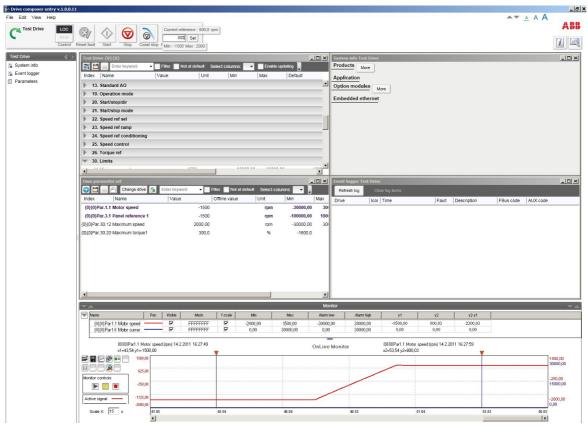


Figure 67. Floating windows





Parameter window

What this chapter contains

This chapter describes the parameter and custom parameter windows.

Parameter window

With Drive composer entry the parameter window is always opened when you make connection to a drive. With Drive composer pro the parameter window is opened by clicking on the selected drive in the drive list and selecting **Parameters**.

If you close the parameter window you can open it by clicking **Parameters** in the drive list.

The parameter window view displays parameter groups, parameters and their values for the associated drive or a file. There can be several parameter windows in the working area. The headline of each parameter window shows which drive it belongs to. On top of the parameter window there are the following command icons.

lcon	Description
	Expands/collapses parameter groups. When parameter groups are expanded, all parameter values are read once from the drive. Note: First this might take up to one minute depending on the drive type.
	Saves parameters to a file. Saves visible parameters to a file. File extension is *.dcparams(bak).
<u>=</u>	Prints visible parameters.

70 Parameter window

Icon	Description	
Enter keyword ▼ Filter	Enables you to search parameter lists with a keyword. Search is activated/deactivated by clicking the Filter check box. When the Filter check box is unchecked all parameters are seen.	
	Note: If parameter groups have not been expanded, the first search takes about 3060 seconds.	
Select columns:	Allows you to select/deselect columns to be seen in a parameter window.	
Enable updating	Parameters are updated only when a group is opened. With the Enable updating function it is possible to set all open and visible groups to be updated automatically. Parameters that have been set to be updated automatically have a yellow background.	
Download user set to drive:	Allows you to download a user set to a drive if you are using Drive composer pro. For more information on the user set handling, see the firmware manual of the drive.	
	Allows you to copy a custom parameter window for another drive. This feature is useful with multidrives if you have to change a drive to see the corresponding values from another drive.	
	Allows you to download parameters from a file to a drive. With a custom parameter window allows downloading offline values to a drive.	
Change drive	Enables you to change the window target, which is useful if you have Drive composer pro and you have to check certain parameters of another drive. Included only in custom parameter windows.	
Not at default	Provides you with a list of all user-changed parameters if you click the check box. These parameters have an orange background.	
•	Allows you to add or remove one parameter or signal or several parameters or signals to/from a custom parameter window.	

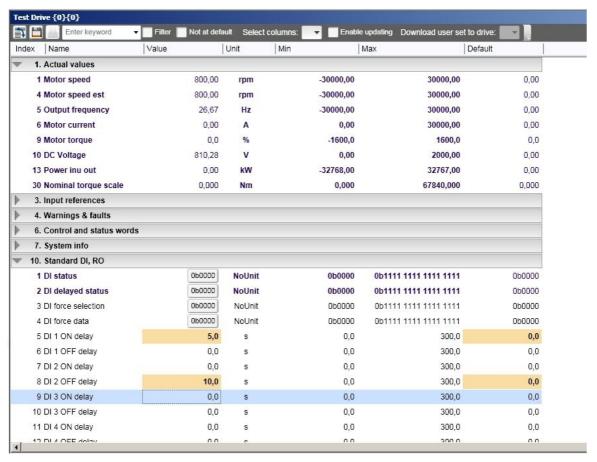


Figure 68. Parameter window

The parameter window contains different types of parameters. Some of these types are identified by colors or bold fonts as shown in the table below:

Icon/Example	Explanation
Regular	Normal parameters
1.1 Motor speed	Signals (bold, magenta)
1 DI status 060000	Bit names of a parameter can be seen by double-clicking on the parameter (bold). New window opens.
P2.1.1	Parameter value is set from another parameter, for example, parameter group 2, index 1, bit 1.
P2.1.2-	Parameter value is an inverted bit of another parameter, group 2, index 1, bit 2.
	User has changed the value of a parameter (shown with an
28 Al2 max 20,000	orange background).

The most common type is the regular parameter. Parameters are normally readable and writeable. However, when the drive is running, some parameters may be write-protected.

Parameter names, values, units, default values and different user sets are shown in the parameter window. The number of user sets depends on the drive type.

The value of a parameter is read only once. If you want to update this value, right-click it and select Refresh the parameter. You can set all visible parameters to update automatically by clicking the Enable updating button.

The values of signals cannot be modified. If signals are modified, you will get an error prompt for every signal. Signals are updated cyclically in the parameter window. Parameter signals are also updated frequently, but their values can be modified.

Navigating parameters and groups

Parameter values are updated if they are modified. A parameter value can be modified by double-clicking the parameter or by pressing **Enter** on a highlighted parameter. To update a value, right-click it and select **Refresh the parameter**.

In special cases where hidden parameters and groups become available by modifying some parameter values, the **View** -> **Refresh** command updates the whole parameter table. An example for such a group is group 51 FBA A Settings: When the adapter module has been enabled in group 50, the parameter names can be seen by selecting **View** -> **Refresh**.

Note: The parameter window must be closed before refreshing and opened again after refreshing.

There are five alternative formats in which parameters are shown: default, binary, hexadecimal, integer and float format. To change the format of a parameter, right-click it and select either **Use default format**, **Use binary format**, **Use hexadecimal format**, **Use integer format** or **Use float format**.

You can change the widths of the columns by dragging the vertical lines between the column headers.

You can also see the bit names of certain binary parameters by double-clicking the value field box. For example, in the picture below parameter 10.1 DI status has been double-clicked.

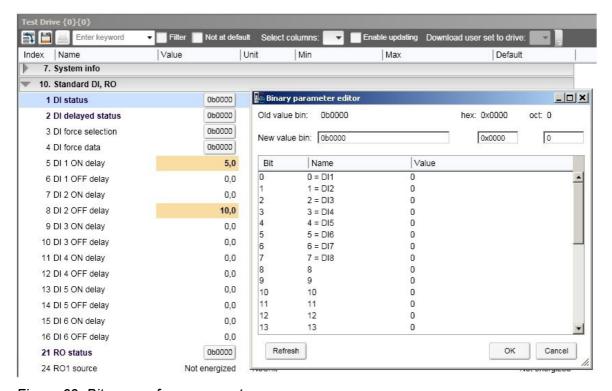


Figure 69. Bit names for a parameter

To reset a parameter, right-click it and select **Reset to default**.

Parameter values are read once when a group is opened. Independent parameters from different groups can be set to the Auto-update mode by right-clicking them and selecting Add to auto-update. The parameters that are updated automatically are seen with a yellow background as shown in the following figure.

Note: Signals are automatically updated cyclically.

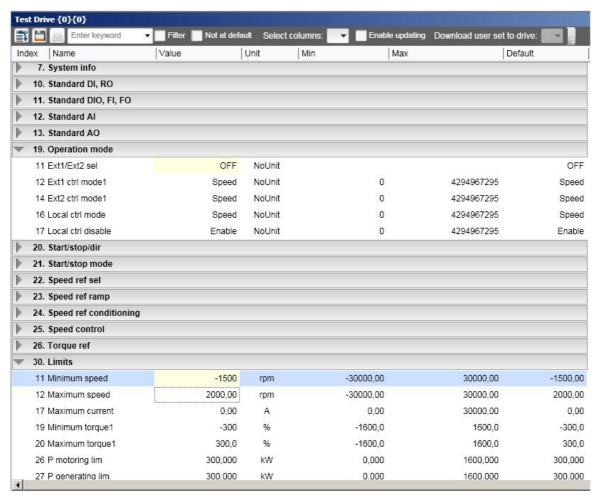


Figure 70. Parameters with a yellow background

Parameters or signals can be sent to the monitor window by right-clicking them and selecting **Send to monitor**. Parameters can be copied to a custom parameter window by right-clicking them and selecting Copy. In addition, you can drag and drop parameters to a custom parameter window.

Pointer parameters

One special type of a parameter is a pointer parameter. The value of a pointer parameter is read from the parameter it points to. Depending on the pointer parameter, value or bit pointer, its target can be another parameter or one of its bits. Some pointer parameters can be assigned TRUE or FALSE.

In most cases, common settings are offered as a selection list. In those cases where the selection list does not offer the correct pointer, pointing can be done by selecting **Other...** from a selection list.

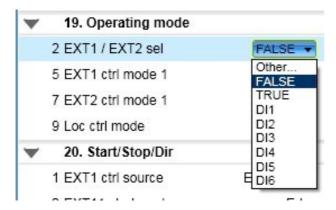


Figure 71. Constant value for a pointer parameter

Select a parameter from the list for a value pointer and then its bit from 0 to 31 for a bit pointer.

You can also enter a value manually by selecting the Edit manually check box. The value must follow form P.#.#, where the first # is the parameter group number, the second # is the parameter number and the third # is the bit number without leading zeros (for example P.2.1.2).

TRUE or FALSE are the constant values that can be entered manually.

Set pointer parameter - - X Old value : Off New value : P.10.1.5 -Edit manually ✓ Invert Value Other 10 Standard DI, RO 1 DI status Bit: 5 = DI6 ▼ 2 DI delayed status 3 DI force selection 4 DI force data 5 DI1 ON delay 6 DI 1 OFF delay 7 DI2 ON delay 8 DI2 OFF delay 9 DI3 ON delay

A bit pointer value can also be inverted by selecting the Invert value check box.

Figure 72. Inverting a bit pointer value

Ok

The inverted bit pointer value is shown with the minus sign at the end of the parameter.



Figure 73. Inverted bit pointer value with the minus sign

Setting fieldbus data in/out parameters

Cancel

Process data transferred to and from the drive/PLC is set with parameter groups 52 and 53. With an ACS880 drive it is possible to select the data type for each selected parameter/signal in these group.

1. Double-click an FBA data in/out parameter and select Other.

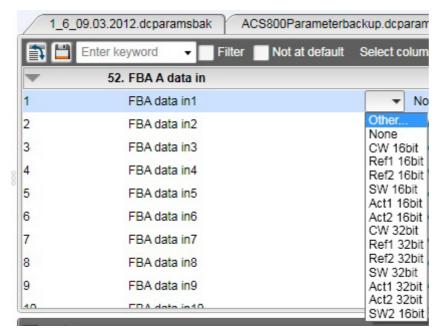


Figure 74. Selecting the data type

2. Select the format in which the value is handled:16-bit, 32-bit or floating point format.

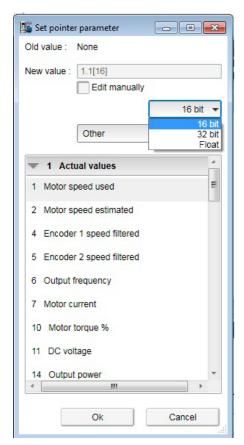


Figure 75. Selecting the format

In the parameter window the selections are shown inside brackets: [16], [32] or [F].

~	52. FBA A data in		
1	FBA data in1	1.1[16]	NoUnit
2	FBA data in2	1.11[16]	NoUnit
3	FBA data in3	1.7[32]	NoUnit
4	FBA data in4	None	NoUnit
5	FBA data in5	1.4[32]	NoUnit

Figure 76. Formats shown inside brackets in the parameter window

Note: The floating point or 32-bit value reserves 2 slots in the configuration. Consequently, if you try to select a value for parameter 52.04 as in the figure above, you get a Parwrite failed error message. The scalings of parameters/signals are found in ACS880 primary control program firmware manual (AUA0000085967 [English]).

Binary parameters

Binary parameters have a special meaning for each of their bits. These parameters are modified in a special Set binary parameter dialog. The value can be modified numerically in binary, hexadecimal or decimal format.

Values can be modified bit-by-bit by double-clicking with the primary mouse button the value field for each bit. If some of the bits are not allowed to be edited, they are grayed out.

Another way to modify a bit is to type the bit value directly to the New value [bin] field.

Signal values, which are in binary format, can be viewed in a similar dialog.

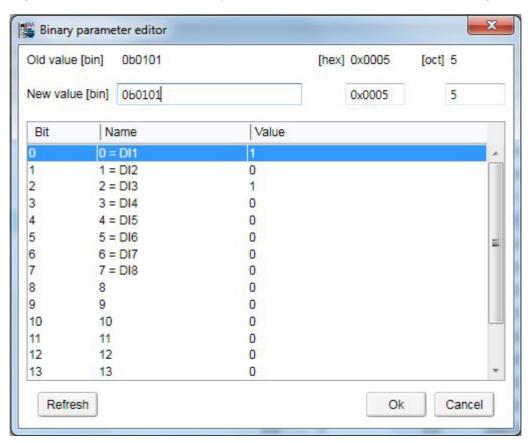


Figure 77. Binary parameter editor

Search for groups and parameters

You can search the names of parameters and groups inside the parameter window. The search result is a list of all parameters matching the search text criteria. For example, all torque-related parameters can be found by entering search criteria "torque" in the Enter keyword field and clicking the Filter check box. To uncheck the Filter box, click it again.

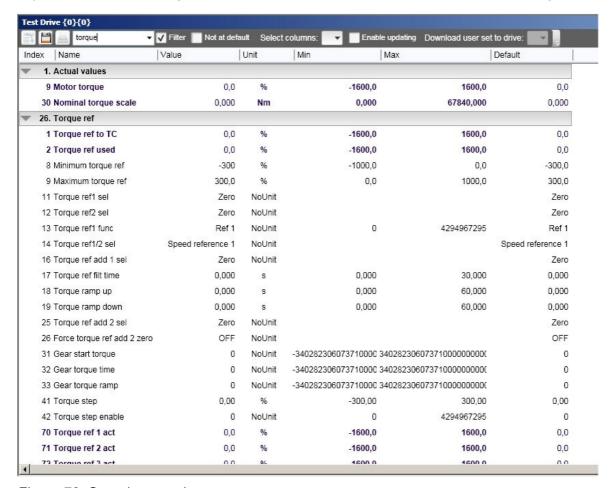


Figure 78. Search example

Note: The first search takes about 30...60 seconds, because Drive composer goes through the whole parameter structure. The next searches are fast. All searches are in memory of the PC as long as Drive composer is on.

Custom parameter window

In Drive composer it is possible to customize parameter windows. This means that parameters/signals can be dragged and dropped or copied from the main parameter window or from other custom parameter windows. You can rename custom parameter windows.

For example, you can collect all the typical parameters used in a quick start-up to one window. You can create separate windows for separate functions (for example, references, limits, ACS880 I/O). Custom parameter windows open automatically when a connection to a drive is made because they are saved with the workplace. Custom parameter windows can also be opened separately.

Parameter values can be changed in custom parameter windows. Custom parameter windows can be used both in tabbed and floating windows environments.

Separate custom parameter windows can be also saved to a file by selecting **Save** parameters to file. The changed values in the Offline value column are saved as well. Therefore the contents of a custom parameter window can be used for the parameterization of another drive. You can send the saved custom parameter windows to other users and they can open them with their Drive composer to see parameters that you want them to check or download to a drive.

Note: When a custom parameter window is saved, the actual drive values of the Value column are copied to the Offline value column. During loading the values in the Offline value column are shown in comparison with the current actual values. When you open the file containing the saved custom parameter window you can copy the values of the Offline value column to another drive by clicking the Download to device button.



Figure 79. Download to device button

In a network of drives, you can create a custom parameter window including parameters/signals selected from different drives. To have a view where all parameters are from one drive, click the Change drive button and select the drive.

To see the value of a parameter/signal used in another drive, right-click the parameter/signal and select Change drive.

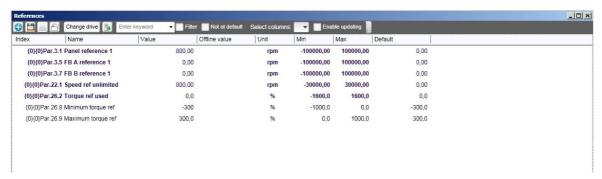


Figure 80. Change drive button

Adding parameters to a custom parameter window

The following example shows how to:

- create a new custom parameter window
- · add parameters to a custom parameter window
- modify the Offline value column in the custom parameter window
- copy/download parameters to a drive.
- 1. Click File -> New -> Custom parameter set.
- 2. Name your custom parameter window.
- 3. Click the Add button to add parameters/signals to the new custom parameter window.
- 4. Select the minimum and maximum speed values from group 30.
- Change the values in the Offline value column to be the same as the online values.
 Note: The values in the Offline value column do not have to be the same as the online values.
- 6. Save the custom parameter window by clicking the Save parameters to file icon.
- When connecting the next drive open the above-created custom parameter window by clicking File -> Open -> Custom parameter set.
 You can now see the online values of the new drive.
- 8. Copy the offline parameter values to a new drive by clicking **Download to device**.

Working with parameter files

Saving/Downloading parameter files

The following example shows how to:

- save parameters to a file
- copy/download parameters to a drive.
- Start up the drive.
- Click the **Save parameters to file** icon in the parameter window.

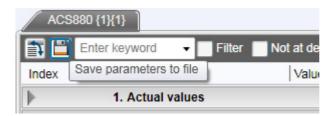


Figure 81. Save parameters to file icon

3. Select a folder, enter a name for the *dcparamsbak file and click **Save**.

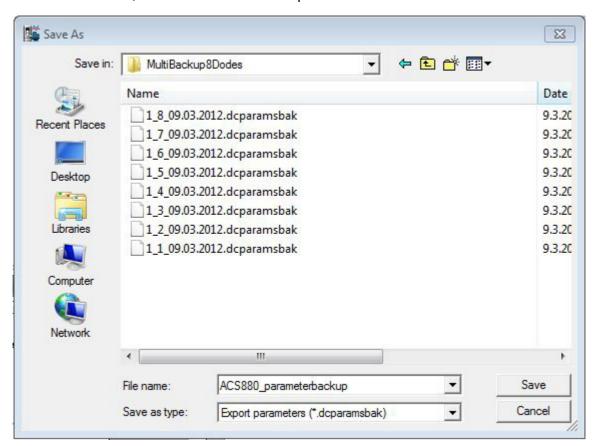


Figure 82. Saving the *dcparamsbak file

- 4. To restore parameters to a drive, go to File -> Open -> Parameter file.... A separate tab opens.
- 5. Copy the parameter values to a new drive by clicking the **Download to device** icon.

You are asked to confirm the action.



Figure 83. Download to device icon

6. If you get a message indicating that the upload of parameter values is going on, click **OK**.

At the end of the restore operation you get a report of the operation.

7. Check the parameters that seem to have failed during the restore operation.

Note: If you use Drive composer entry you cannot modify parameter files in the Offline mode. With Drive composer pro parameter values can be modified offline.

Drive composer shows the opened parameter files in a tree structure.

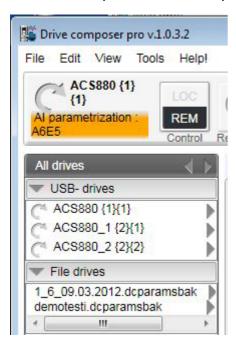


Figure 84. Parameter files in a drive tree

Note: Drive composer does not check the drive type and software version when copying parameters from a custom parameter window or a parameter file to a drive. Only visible parameters and ID run results are copied to a drive when the download command is used.

Use the backup/restore operation, for example, for the application program (Control Builder Plus program), panel home view configurations and different user settings. With the restore function you can also define how different parts are handled during the restore operation, for example, ID run results can be restored or cleared during the restore operation.

Note: The backup/restore function is available only with Drive composer pro.

Comparing drive data (pro)

Note: Both versions of Drive composer have the Not at default function for listing userchanged parameters. The Compare drive data function compares parameter values.

With Drive composer pro you can compare parameters between

- two drives
- two parameter files
- drive and parameter file.
- 1. Go to Tools -> Compare drive data (Alt+C).

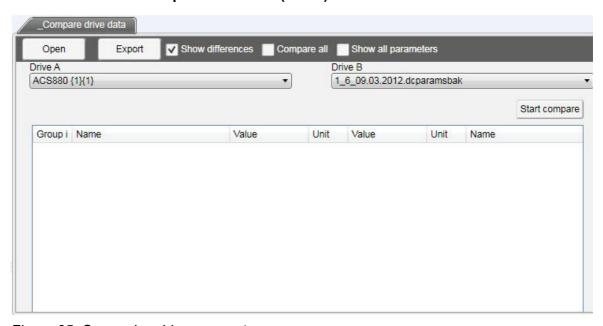


Figure 85. Comparing drive parameters

- 2. In a PC tool network, select drives from **Drive A** and **Drive B** drop-down menus.
- 3. To open a parameter file for comparison, click the **Open** button.
- 4. To see the parameter list without differences, clear the **Show differences** check box and select the Show all parameters check box.
- 5. Click the **Start compare** button.

Note: The operation may take a while because there are two different parameter structures.

84 Parameter window

The following figure shows an example of the result.

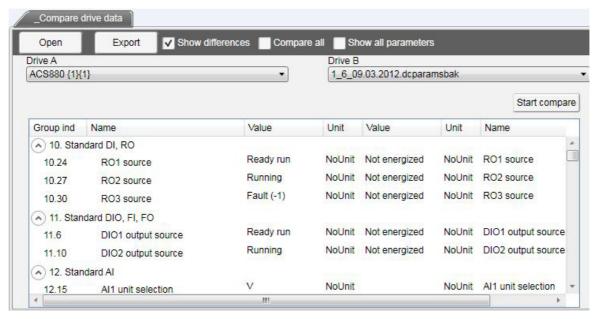


Figure 86. Result of a comparison

6. To export the result to a text (*.txt) file, click the **Export** button.

Note: Click the >> << buttons to copy parameter values from Drive A to Drive B.

Monitor window

What this chapter contains

This chapter describes the monitor window and its use.

Monitor window

You can use Drive composer to observe the operation of connected drives. The monitor window shows signal values in graphical or numerical format online. The monitor data can be saved to a file for later use.

With Drive composer entry you can monitor 2 signals using 1-second time stamping.

With Drive composer pro you can monitor 32 signals. 8 signals can be monitored with fast time stamping. If Drive composer pro is used with an ACS880 drive, it is possible to monitor 1 signal per 1-ms time interval.

The monitor window is always a tabbed window, in other words, there is only one monitor window available.

User-made monitoring settings (selected signals, y-scalings for signals, pen colors, number of grids etc.) are saved with a workspace. See chapter Workspace handling for more information.

Resizing the monitor window

When you start Drive composer the monitor window is in the minimized position and you have to lift it in the following way before you can start monitoring.

 You can resize the monitor window by clicking the title bar with the primary mouse button and dragging it upwards.

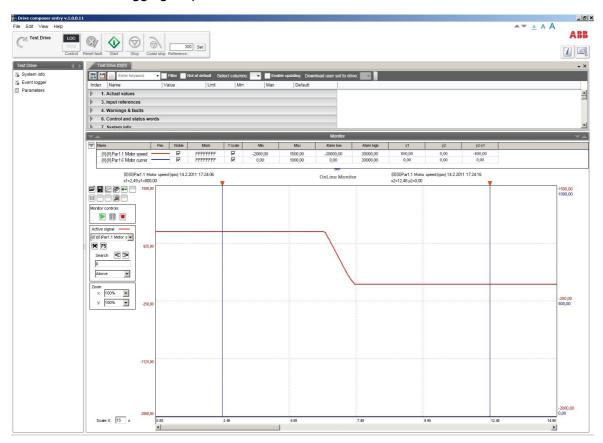


Figure 87. Monitor window

- You can resize the monitor window with the Minimize, Maximize and Split monitor buttons included in the Monitor menu bar.
- You can lift the monitor window by clicking the arrow buttons in the title bar.

Adding parameters/signals for monitoring

There are two ways to add parameters/signals to the monitor window:

Right-click a parameter/signal in the parameter window and select **Send to monitor**.

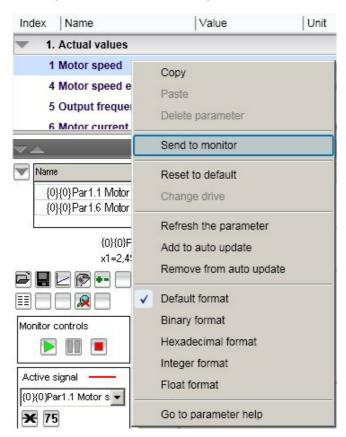


Figure 88. Send to monitor command

Click the Add signal icon on the configurations and control area in the monitor window.



Figure 89. Icons on the configuration and control area in the monitor window Select parameters from the Choose parameters list by double-clicking them or by selecting and clicking the Add button.

Note: With Drive composer pro you can select signals/parameters from many different drives. Change the drive from the Drive list as shown in the following figure.

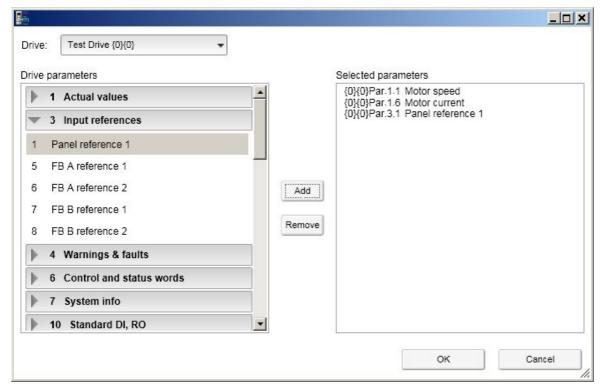


Figure 90. Drive list

The selected signals appear in the legend area.

To change the scalings of the y-axis of selected parameters/signals, click the Min or Max column in the legend area.

Active signals can be changed from the pull-down menu on the left side of the graph area.

All the other signal scalings are performed on the right side of the legend area. The right side y-scalings can be hidden by removing the check mark form the Y-scale column check box.



Figure 91. Changing the pen color and style in the legend area

You can change the color and thickness of the pen only after you have minimized, that is hidden, the legend area with the Arrow button on the left (see the figure above).

To change the scalings of the y-axis for selected parameters/signals, click the Min or Max column in the legend area.

Monitor window components

The monitor window consists of the following parts:

- Configuration and control settings
- Graph area
- Y-axis
- X-axis
- Legend area
- Limit, color settings.

Configuration and control settings

Icon	Description
	Opens the saved monitored file to the graph area, which can be done only after monitoring has been stopped. File extension is *.dcmon.
	Note: If you have an online connection and want to start a new monitoring session after viewing opened monitored data, you can click the Monitor configuration icon.
	Saves the accumulated monitor data to a monitored data file. File extension is *.dcemon for the entry version and *.dcpmon for the pro version.
	Chart configuration can be used to set the colors for grids, number of grids, background color, color of alarm pen etc.
2	Opens the Monitor settings window where you can modify the monitor settings and the select the sample interval time for monitoring. You can also set the method for starting and/or stopping monitoring (by hand/time/trigger). You have to select the HD where the saved data is stored. Note: The monitored data is saved cyclically to the selected file.
* -	Allows you to create an arithmetic signal for monitoring by using two signals used in monitoring. Available operations are ADD, SUB, MUL and DIV.
	Note: Remember to save settings in a workspace.
•	Opens a dialog where you can add or remove one signal or several signals from the monitor configuration.
	Note: You can use the Add signal function only when monitoring has been stopped.
	Shows the signal values in text format. Only the values seen in graph area are included in the numeric signal value list.
and a	Copies the monitoring graph to a clipboard.
Auma	Scales the y-axis automatically.
Auto	Note: Zooming is not possible in the Autoscaling mode.
12	Resets both x- and y-axis zooming to original 100%.
	You can export the monitored data in csv format to a PC. Exported data can analyzed with other tools. Use the Tab key for delimiting the columns.File extension is *.dcexp.

Monitor controls

Icon	Description					
	Starts recording data in the selected drives and displaying it on the screen.					
	Pauses monitoring on the screen but monitoring continues on the background. When you click the Pause icon again, all values are seen and monitoring continues normally.					
	Stops recording data in the selected drives. The graph or numerical values remain on the screen. The graph can be saved for later purposes.					

Active signal

The Active signal area consists of functions that can be done with the selected active signal. The signal can be changed from the pull-down menu.

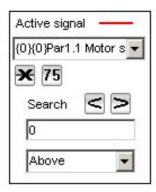


Figure 92. Active signal area

The main functions are the following:

Icon	Description
1.0	Allows you to see the measuring points of the active signal. See figure <i>Measuring points for the active signal</i> .
	Note: This functionality works only if you have zoomed in enough in the graph area, that is, if the length of the x-axis is short enough.
75	Allows you to see the numeric values of the measuring points for the active signal. See figure <i>Measuring points for the active signal</i> . Note: This functionality works only if you have zoomed in enough in the graph area.
<	Searches to the left. The following search conditions can be selected from the pull-down menu: Above, Below or Either. See figure Search functionality.
>	Searches to the right. The following search conditions can be selected from the pull-down menu: Above, Below or Either. See figure Search functionality.



Figure 93. Measuring points for the active signal



Figure 94. Search functionality

Zoom tool

With the zoom tool you can enlarge the graph and take a closer look at interesting details. To do so, follow these steps:

- To set the starting corner for the enlargement, place the mouse cursor in the graph area and press down the primary mouse button.
- 2. Drag to the opposite desired corner, and release the button. The part of the graph that was inside the selection rectangle zooms out to fill the graph area.
- 3. To reset the zoom tool, click the Reset zoom icon.

You can also use the zooming tool by selecting independent values from the x and y pulldown menus.

Note: Monitoring is paused during zooming. To continue monitoring, click the Reset zoom icon shown in the figure below.

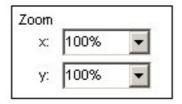




Figure 95. Zoom tool

Legend area functions

The legend area shows selected signals. You can perform the following actions in the legend area:

- Change the color of the pen and the thickness and style of the pen by minimizing the legend area and setting the values of each signal. See figure Legend area functions.
- Make signals visible or invisible by clicking the check box in the Visible column.
- Set a bit mask for monitoring. When you double-click the value in the Mask column, a new window opens allowing you to select bits for monitoring.
- Make Y-scalings visible or invisible by clicking the check box in the Y-scale column.
- Set values for y-axis scaling. You can modify the minimum and maximum values by clicking them and entering a new value. Press Enter to enforce the new value or press Esc to restore the value.

Note: If you do not see immediate changes in the graph area, check that autoscaling is not enabled.

- Set alarm limits for monitored signals. The color of a signal changes when the limit in the Alarm low or Alarm high column is reached. The color and style for the pen are selected from **Chart settings**.
- See the double cursor tool, y1 and y2 values and y2—y1 and x2—x1 differences.

					Alarm high	,,	,-	y2-y1
✓ FFFFFFF	V	-2000,00	1500,00	-30000,00	30000,00	0,00	0,00	0,00
FFFFFFF	✓	0,00	1000,00	0,00.	30000,00	0,00	0,00	0,00

Figure 96. Legend area functions

Graph area functions

The monitor window and data logger window have similar graph area facilities for displaying signal values. Their usage is described here. Before Drive composer starts monitoring online, the OnLine monitor text is seen in the graph area. When monitor files are viewed, the DataFile Viewer text is seen in the monitor window.

The graph area shows the selected signal values with different colors. Time runs on the x-axis. The x-axis can be set from 0 to 120s. The x-axis can be also changed during online monitoring. Scalings of the y-axis are changed in the legend area.

An orange arrow-head on the x-axis indicates where triggering has occurred. Data can be collected from several files to one graph.

Double cursor tool

With the cursor tool, you can see the exact values of the signals at two positions in the graph area. You can move the position of cursors by clicking the primary mouse button down on the red cursor tool icon and moving it. While the mouse button is pressed down, you can move the cursor line to the left and right.

The time stamp of the cursor tool is shown in the header of the cursor tool. This is shown for the active signal. The time stamp changes if active signal is changed. The values for y1 and y2 are shown in the legend area. Signal value differences are shown in the column y2—y1. The time difference for x2—x1 is also shown in the figure below.



Figure 97. Double cursor tool

Workspace handling

What this chapter contains

This chapter describes the workspace functionality.

Overview

Workspace consists of the user interface status, such as parameter windows, custom parameter windows, monitoring window contents and scalings in the monitoring window.

The current workspace status can be saved to a file and restored later.

Note: You cannot save/restore the following status data:

- drive control status
 - If a drive has been controlled locally with Drive composer when the workspace is saved, the workspace is saved without the change in the drive control status.
- content, status and zooming levels of a stopped, paused or running monitor.

Note: Do not edit a workspace or graph file. The workspace (.dcxml) and monitored data (.dcmon) files can contain binary data. For example, if the default workspace file is corrupted, Drive composer does not open. If Drive composer does not open, delete your default (.dcxml) file from the PC and open Drive composer again.

Creating a workspace and using it as a default workspace

- Make a connection to a drive.
- 2. Resize the monitor window to half a screen.
- 3. Create a new custom parameter window by clicking **File -> New... -> Custom parameter set** and name it "Own limit window".

See figure Save workspace command.

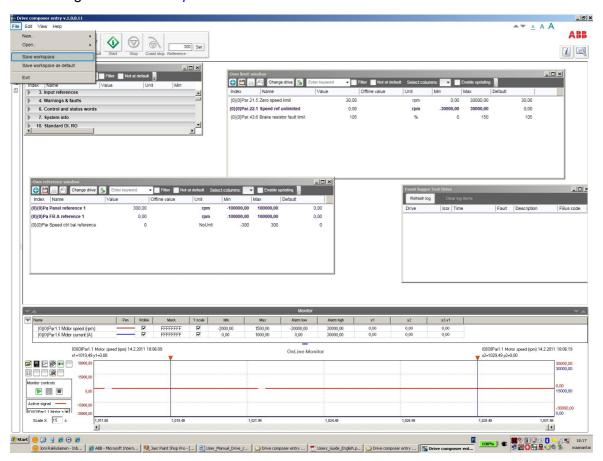


Figure 98. Save workspace command

- 4. Create another custom parameter window and name it "Own reference window".
- Select floating windows by clicking View -> Floating windows.
- 6. Enter keyword "Limit" in the Enter keyword field of the main parameter window.
- 7. Select parameters in the main parameter window and drag and drop or copy them to custom parameter window Limit.
- 8. Clear the search result and enter keyword "ref" in the Enter keyword field.
- 9. Select parameters in the main parameter window and drag and drop or copy them to custom parameter window Own reference window.
- 10. Close the main parameter window.
- 11. Click the **Event logger** icon in the drive list on the left.
- 12. Click the **Add signal** icon in the monitor window and add signals.
- 13. Set y-axis settings for your signals in the legend area.

- 14. Set colors for the signals by minimizing the legend area and changing the colors of pens.
- 15. Click File -> Save workspace and name it "OwnWorkspaceFor ACS880".

See figures Save workspace command and Name for your own workspace.

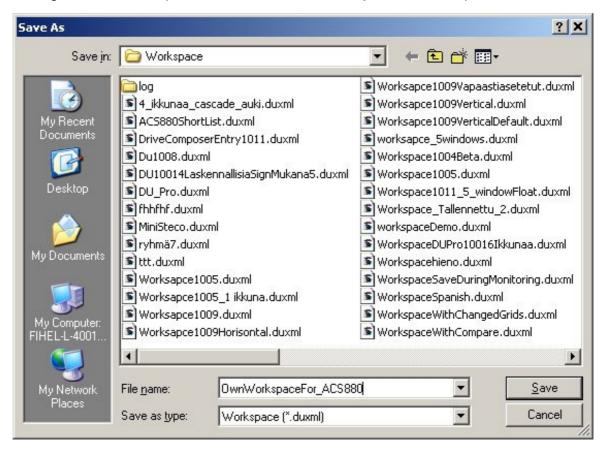


Figure 99. Name for your own workspace

- 16. Close the connection to the drive and make a new connection.
- 17. Click File -> Open... -> Workspace and open the workplace that you have just saved.

See figure Open workspace command.

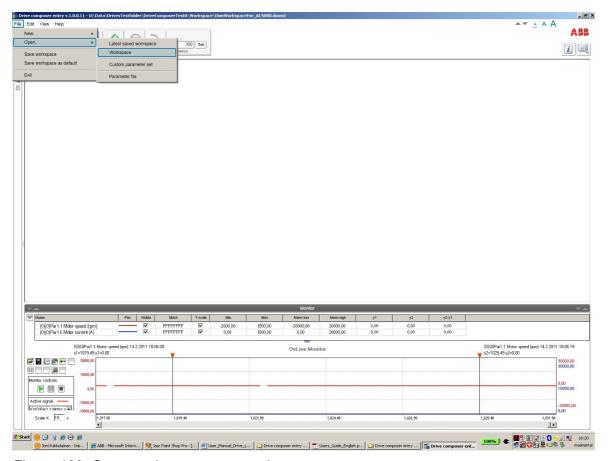


Figure 100. Open workspace command

The workspace is ready to be used for commissioning and maintaining drives.

The workspace can be also saved as a default workspace, so that it opens automatically when Drive composer is started.



Event logger

What this chapter contains

This chapter describes the event logger view and its use.

Event logger view

The event logger view displays the contents of an event logger of a connected drive. The contents of an event logger can be faults (stopping the drive), alarms or events. See the figure below.

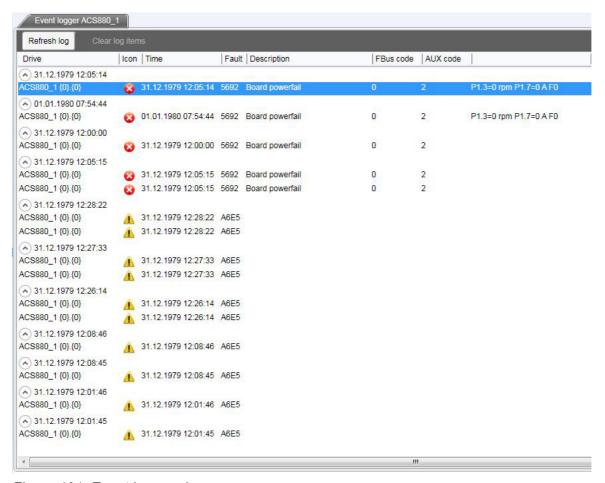


Figure 101. Event logger view

The event logger always relates to a single drive and resides in its window.

The Icon column shows the following alarm and fault icons:

- Red circle with a white cross (x) means that the drive has a fault.
- Yellow triangle with an exclamation mark means that the drive has an alarm.
- Grey circle or triangle means that the fault or alarm has disappeared from the drive.

The time stamp for faults, alarms and events comes from the drive.

By default the contents of an event logger show the five latest faults first and then alarms. To sort the contents by time, click the Time column.

Diagnostics

What this chapter contains

This chapter describes how to troubleshoot a drive with the Support package button of Drive composer and a data logger included in the drive.

Support package

By clicking the Support package button, you can collect troubleshooting data and send it to the support personnel for analysis.



Figure 102. Support package button

Drive composer creates a SupportFiles.dcsupport file to the email program installed in the PC. If there is no email program available, Drive composer copies the SupportFiles.dcsupport file to the following place:

- Win 7: C\Users\"username"\Appdata\Local\Temp\
 - Note: If Windows Explorer does not find the Appdata folder, write the path to the address field of Windows Explorer.
- Win XP: C:\Documents and Settings\"Username"\Local Settings\Temp\.

The support package includes different files depending on the drive type. All parameters, contents of the event logger and System info are always available.

To open the contents of the SupportFiles.dcsupport file with WinZip, rename the file as SupportFiles.zip.

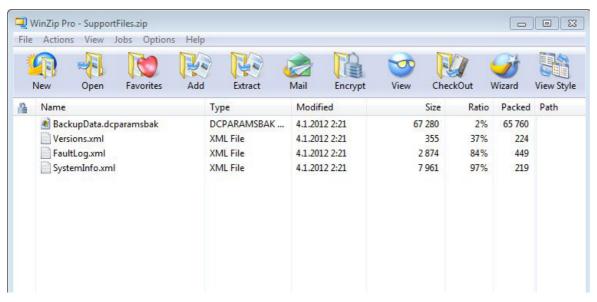


Figure 103. Contents of the SupportFiles.dcsupport file

The BackupData.dcparamsbak file can be opened with Drive composer. Other files can be opened with standard windows programs. In the figure below the FaultLog.xml file has been opened with Microsoft Excel.



Figure 104. FaultLog.xml file opened with Microsoft Excel

System info

The System info tab provides basic information about the drive and its options, for example, drive type code and firmware version.

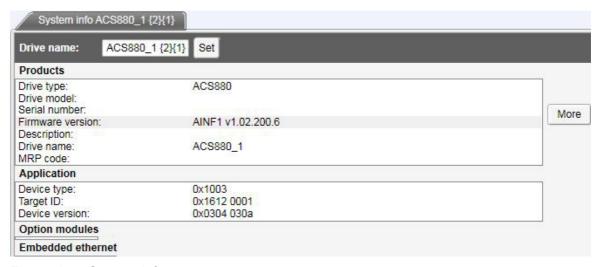


Figure 105. System info

Data logger (pro)

ABB drives have data logger(s) that can record data from various signals of a drive even if the drive has not been connected to a PC. A data logger is operated with the data logger view.

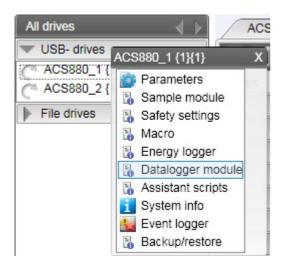


Figure 106. Data logger configuration

The data collecting can be stopped with a specific stop command or automatically when a triggering condition becomes true in the drive. After the data collecting has stopped, the collected data can be read and studied with Drive composer pro.

104 Diagnostics

The data logger view resembles the monitor window. Normally the data logger view provides data from a single drive, but in some cases it is possible to upload data from a multidrive configuration to one data logger window.

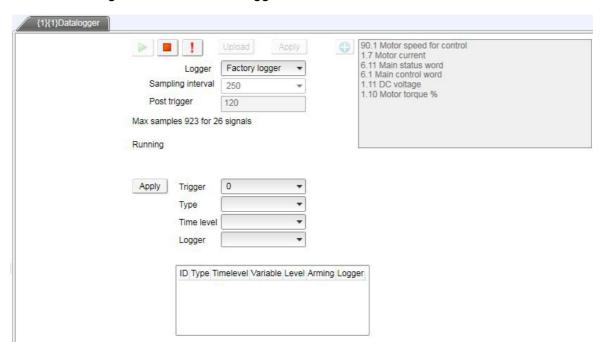


Figure 107. Data logger view

Data logger settings

The data logger settings window contains the following functions:

- Data logger commands
- Data logger content configuration
- Data logger trigger configuration.

The Apply command must be used both for the Logger and Trigger conditions.

Data logger commands

Button	Description
•	Start button records data in the current Logger of the drive.
•	Stop button ends recording data in the drive.
•	Trigger button triggers the associated Logger.
Upload	Upload (Show) button switches the cursor tool.

Data logger content configuration

With the data logger content configuration you can determine which data logger of a drive is going to be used.



Figure 108. Data logger content configuration

- Logger determines which logger settings are modified. A drive has user logger(s) and factory logger(s). Factory logger settings cannot be modified.
- Sampling interval determines in milliseconds how often the logger reads samples of the signal values. The time level shows the available lengths of the internal cycle time of the drive.
- Post trigger specifies in microseconds how long the drive keeps reading the signal values.
- Logger information panel on the bottom shows how many samples and how much memory is consumed and how long the data logging can be done according to the number of signals, the time level and the sample interval.
- Logger signals panel on the right shows a list of signals selected to be recorded. You can add/remove a signal by clicking the plus icon.

Note: The maximum number of signals that a logger can record at one time depends on the drive.

Data logger trigger configuration

With the data logger trigger configuration you can determine trigger conditions for each trigger.

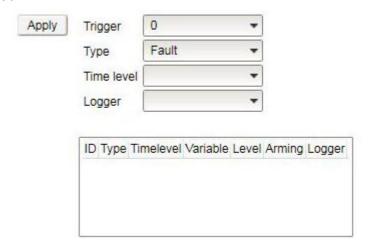


Figure 109. Data logger trigger configuration

Adding a trigger

- 1. To modify the conditions of a trigger, select the trigger from the **Trigger** drop-down menu.
- 2. Choose the type for the triggering condition from the **Type** drop-down menu.

There are the following alternatives (however, not all of them are available at all times):

- Disabled, can temporarily disable a trigger condition
- Fault, stops when the drive reports a fault
- Warning, stops when the drive reports an alarm
- **Event**, stops when the drive reports an event
- Rising edge level, stops according to the selected signal, triggering level and hysteresis values
- Falling edge level, stops according to the selected signal, triggering level and hysteresis values
- Mask pattern, stops according to the bit mask of the selected signal
- External, stops because of an external condition.
- 3. To determine how often the trigger conditions are checked, select a time level from the **Time level** drop-down menu.

Time is given in microseconds. The trigger time level shows the available cycle times in a drive. **Note:** There is a limited number of triggers in a drive.

- 4. From the **Logger** drop-down menu select the logger to which the trigger settings apply.
- 5. Click the **Apply** button.

Using the level triggers

When condition Rising edge level is used, the function wakes up when the actual value of the triggering signal is below the triggering level - hysteresis. Similarly, when condition Falling edge level is used, the function wakes up when the actual value of the triggering signal is above the triggering level + hysteresis.

Rising edge	Triggering signal is below the triggering level when the data logger is started: Triggering occurs when the signal goes above the triggering level.
	Triggering signal is above the triggering level when the data logger is started: Triggering occurs when the signal goes above the triggering level, but before that the signal must go below the triggering level - hysteresis.
Falling edge	Triggering signal is above the triggering level when the data logger is started: Triggering occurs when the signal goes below the triggering level.
	Triggering signal is below the triggering level when the data logger is started: Triggering occurs when the signal goes below the triggering level, but before that the signal must go above the triggering level + hysteresis.

Uploading triggered or stopped data logger data

- 1. In the data logger view select a logger from the **Logger** drop-down menu. If the logger status is stopped or triggered, data can be uploaded.
- Click the Upload button to upload data to the monitor window.
 Note: If you want to continue normal monitoring after using the data logger, click the Monitor configuration icon and select a sampling interval for monitoring.



Figure 110. Continuing to monitor after using the data logger

3. Press the plus icon and add signals for monitoring.

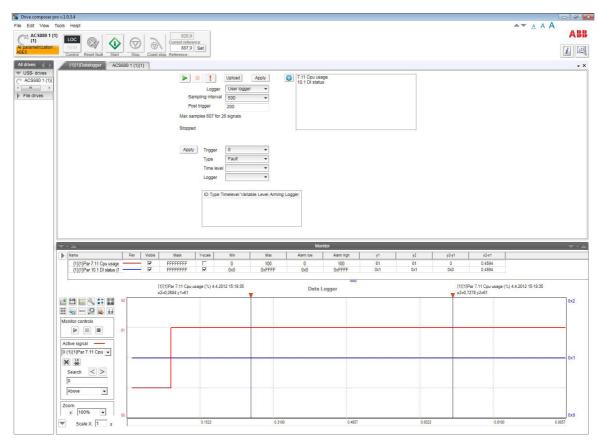


Figure 111. Uploaded data logger data

Amplitude logger (pro)

ABB drives have amplitude loggers that can record data from various signals of a drive. The results of an amplitude logger 1 (current) are displayed by the following curve. Each parameter represents an amplitude range and shows what portion of the samples fall within that range.

Note: Data loggers or amplitude loggers are not available for all ABB drives.

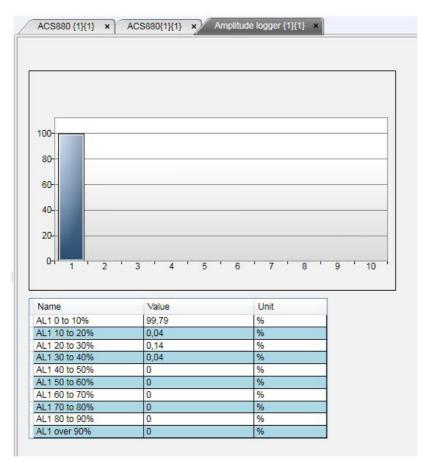


Figure 112. Amplitude logger

Control diagrams (pro)

What this chapter contains

This chapter describes the use of control diagrams helping to understand the behavior of a drive.

Control diagrams

Control diagrams provide a graphical presentation of, for example, the control chain of a drive, the speed and torque control chains and the logic of Start and Stop functions. With these diagrams it is possible to see parameter values related to certain functions. Diagrams also illustrate the position of switches according to parameter values, which helps to understand how the drive logic works. The values of parameters can be changed via control diagrams. A control diagram consists of two levels. The top level shows an overview of the diagrams and connections between them.

Note: Control diagrams are drive-specific; it is possible that they are not available for all drive types.

Note: When you connect to a drive for the first time it takes a while before the control diagrams have been uploaded from the drive. If control diagrams are not found in the drive, Drive composer asks to upload diagrams from the local source (PC).

Control diagrams can be launched by clicking a drive and selecting control diagrams.

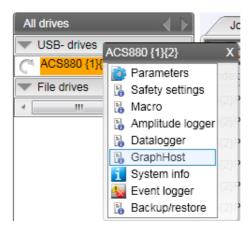


Figure 113. Selecting control diagrams from the drive tree

The top level of a diagram consists of several diagrams. To open one part of a specific diagram, click the top of a box. The figures below show an example of a top level control diagram and a lower level control diagram.

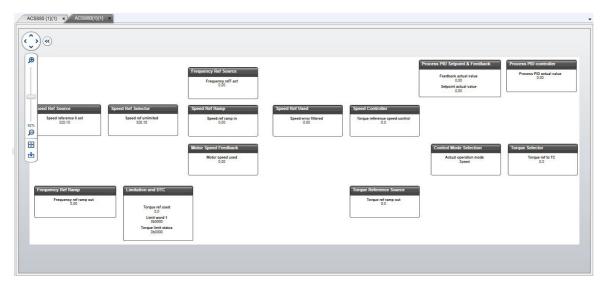


Figure 114. Top level of a control diagram

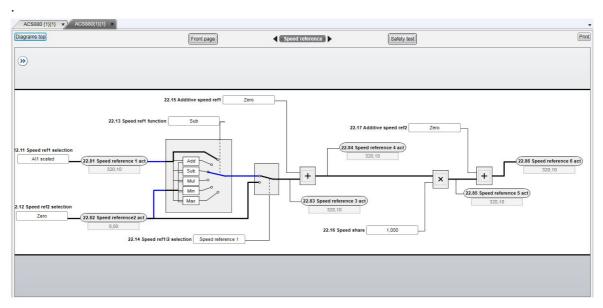


Figure 115. Lower level of a control diagram

To navigate back to the top level of a control diagram, click the **Diagrams top** icon. To navigate through the reference chain, click the buttons circled in the figure above.

To zoom the control diagrams, use the zooming tool in the top left-hand corner of a control diagram.

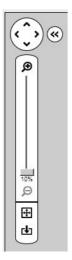


Figure 116. Zooming tool

112	Control diagrams (pro)

FSO configuration

What this chapter contains

This chapter contains the configuration procedure of the FSO-11 safety functions with Drive composer pro and provides an example of how to configure the optional FSO-11 safety functions module.

Example of a FSO-11 configuration

Note: Only trained persons are allowed to configure the safety functions.

Note: You need a password to be able to copy the configuration to the FSO-11 safety functions module.

Note: You can configure the FSO-11 safety functions module only when the motor is not running. You cannot download/upload the configuration file to/from the FSO-11 safety functions module or change the FSO-11 password when the motor is running. See FSO-11 safety functions module user's manual (3AUA0000097054 [English]).

Hardware connection

See FSO-11 safety functions module user's manual (3AUA0000097054 [English]) for the instructions on the hardware connections of the FSO-11 safety functions module. The following example assumes that all hardware-related connections have been made properly and the ID run procedure of the drive has been completed.

Setting the safety functions with Drive composer pro

1. Start the drive equipped with the FSO-11 option module by using the drive control panel.

See Using the drive control panel for starting the drive on page 65.

- 2. Click the drive.
- Click Safety settings.

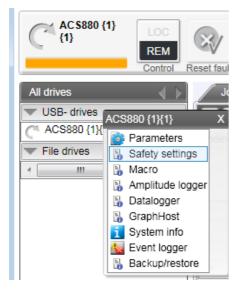


Figure 117. Selecting Safety settings

4. Click Upload from FSO.

Note: The motor must be stopped.

Fault FSO Fault 7A8B appears on the drive.



Figure 118. Fault FSO Fault 7A8B

5. Type the password (8 numbers).



Figure 119. Typing the password

6. Double-click on the value filed and change all necessary configuration settings to match your safety configuration.

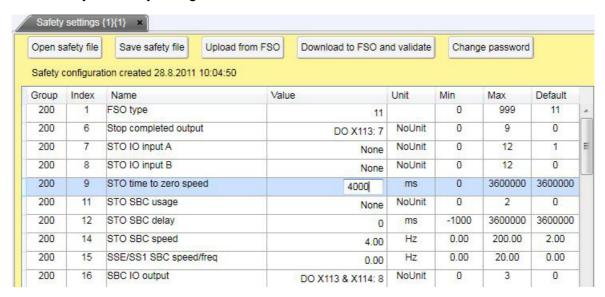


Figure 120. Safety settings tab

7. Click the **Download to FSO and validate** button.

The password is required again.

The following Validate dialog box appears.

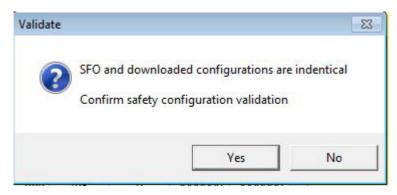


Figure 121. Validate dialog box

8. Click Yes.

The following dialog box appears.



Figure 122. Safety configuration ok message

- 9. Click OK.
- 10. Test your safety configuration when the motor is running.

11. Check the values of parameter group 200.

Note: If there are wrong values, right-click the parameter and select **Refresh the parameter**.

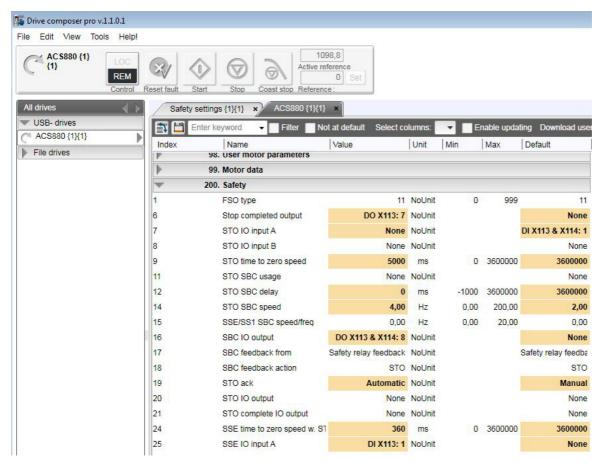


Figure 123. Parameter group 200

12. After testing save your safety settings by clicking **Save safety file**.

Open safety file Save safety file Upload from		so	Download to FSO and validate			Change password			
Safety	configura	tion created 28.8.2011	10:04:50						
Group	Index	Name		Value		Unit	Min	Max	Default
200	1	FSO type			11		0	999	11
200	6	Stop completed outp	ut		DO X113: 7	NoUnit	0	9	0
200	7	STO IO input A			None	NoUnit	0	12	1
200	8	STO IO input B	O IO input B		None	NoUnit	0	12	0
200	9	STO time to zero spe	eed		4000	ms	0	3600000	3600000
200	11	STO SBC usage			None	NoUnit	0	2	0
200	12	STO SBC delay			0	ms	-1000	3600000	3600000
200	14	STO SBC speed			4.00	Hz	0.00	200.00	2.00
200	15	SSE/SS1 SBC speed	d/freq		0.00	Hz	0.00	20.00	0.00
200	16	SBC IO output			DO X113 & X114; 8	NoUnit	0	3	0

Figure 124. Save safety file button

If you want to change the password of the FSO safety functions module, click the **Change password** button.

Note: The motor must be stopped if you change the password.

Further information

Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/drives and selecting Sales, Support and Service network.

Product training

For information on ABB product training, navigate to www.abb.com/drives and select Training courses.

Providing feedback on ABB Drives manuals

Your comments on our manuals are welcome. Go to www.abb.com/drives and select Document Library – Manuals feedback form (LV AC drives).

Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet. Go to www.abb.com/drives and select *Document Library*. You can browse the library or enter selection criteria, for example a document code, in the search field.

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